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| (54) Title: HERBICIDAL BENZENE COMPOUNDS (57) Abstract Herbicidal compositions and method of use involving effective amounts of substituted benzene compounds to control the growth of undesired vegetation. | | |

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TITLE
HERBICIDAL BENZENE COMPOUNDS.

BACKGROUND OF THE INVENTION

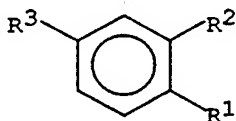
5 This invention relates to agriculturally suitable compositions of certain herbicidal benzene compounds and a method for their use as selective preemergent or postemergent herbicides for controlling the growth of undesired vegetation in crops such as rice.

10 New compounds effective for controlling the growth of undesired vegetation are in constant demand. In the most common situation, such compounds are sought to selectively control the growth of weeds in useful crops such as cotton, rice, corn, wheat and soybeans, to name
15 a few. Unchecked weed growth in such crops can cause significant losses, reducing profit to the farmer and increasing costs to the consumer. In other situations, herbicides are desired which will control all plant growth. There are many products commercially available
20 for these purposes, but the search continues for products which are more effective, less costly and environmentally safe.

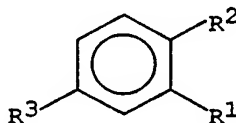
SUMMARY OF THE INVENTION

25 This invention comprises agriculturally suitable compositions wherein the active compounds are the compounds of Formulas I and II, and their method-of-use as preemergent and/or postemergent herbicides or plant growth regulants. Accordingly, the compositions of the invention comprise compounds of the formula

30



I



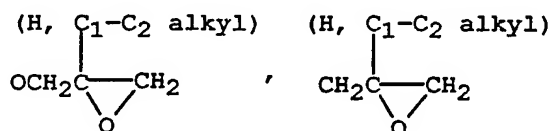
II

wherein

R^1 is Cl, Br, I, OCH_3 , $OCHF_2$, OCF_3 or NO_2 ;

R^2 is CN, CO_2R^4 , CHO, $C(X)NR^{17}R^{18}$, $C(S)OR^6$, $C\equiv CH$,
 5 $CHR^{19}OR^{20}$, $CH=NOR^7$, $CH=CR^{21}R^{22}$, $C(halogen)=NOR^7$,
 $C(NH_2)=NOR^7$, $C(CN)=NOR^7$, $CHR^{19}(halogen)$,
 $CHR^{19}CN$, $CHR^{19}C(=O)NH_2$, $CHR^{19}CO_2H$, or a five-
 membered heterocyclic ring containing one or
 10 more nitrogen, sulfur, or oxygen atoms and
 optionally substituted with one or more CH_3 ,
 CF_3 , OCH_3 , SCH_3 , or halogen;

R^3 is *n*-propyl; C_4 - C_{10} alkyl; *n*-propyl or C_4 - C_7
 alkyl each substituted with one or more
 halogen, OR^8 , SR^9 or $NR^{10}R^{11}$; C_1 - C_2 alkyl
 15 substituted with OR^{16} , SR^9 , $NR^{14}R^{15}$, $CO_2(C_1$ - C_2
 alkyl) or phenyl optionally substituted with
 one or more CH_3 , CF_3 , OCH_3 , SCH_3 or halogen;
 C_3 - C_6 cycloalkyl; $CH_2(C_3$ - C_6 cycloalkyl); phenyl,
 pyridyl, thienyl, furyl, pyrazolyl or
 20 thiazolyl, each optionally substituted with one
 or more CH_3 , CF_3 , OCH_3 , SCH_3 or halogen; C_2 - C_6
 alkenyl optionally substituted with one or more
 halogen or $CO_2(C_1$ - C_2 alkyl); OR^{12} ; SR^{13} ; $NR^{14}R^{15}$;

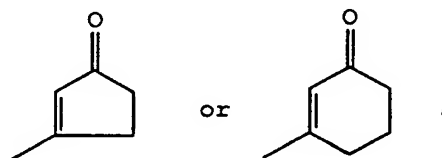


$C(=X)R^{12}$;

or

25 $O-N=CR^{30}R^{31}$;

R^4 is H, C_1 - C_2 alkyl,



- R⁶, R⁷, R⁸, R⁹, R¹⁰ and R¹¹ are independently H or C₁-C₂ alkyl;
- R¹² and R¹³ are independently C₁-C₁₀ alkyl optionally substituted with one or more halogen, OR⁸, SR⁹, CO₂R²³, C(O)NR²⁴R²⁵, CN, Si(CH₃)₃, C(R²⁶)(OR²⁷)(OR²⁸) or NR¹⁰R¹¹; C₁-C₃ alkyl substituted with a five- or six-membered heterocyclic ring containing 1-2 heteroatoms selected from the group 1-2 nitrogens, 1 oxygen and 1 sulfur, each ring optionally substituted with 1-2 substituents selected from F, Cl, Br, CH₃, CF₃, OCH₃ and CN; C₃-C₆ alkenyl; or phenyl or benzyl, each ring optionally substituted with one or more CH₃, CF₃, OCH₃, OR²⁹, SCH₃ or halogen;
- R¹⁴ and R¹⁵ are independently H or C₁-C₂ alkyl, or may be taken together along with the nitrogen to which they are attached to form a pyrrolyl, piperidiny, morpholinyl, pyrazolyl, or imidazolyl ring, each optionally substituted with one or more CH₃, CF₃, OCH₃, SCH₃, or halogen;
- R¹⁶ is H, C₁-C₈ alkyl; benzyl optionally substituted with one or more CH₃, CF₃, OCH₃, SCH₃ or halogen; or phenyl optionally substituted with one or more CH₃, CF₃, OCH₃, SCH₃ or halogen;
- R¹⁷ is H, C₁-C₂ alkyl or phenyl optionally substituted with one or more CH₃, CF₃, OCH₃, SCH₃ or halogen;
- R¹⁸ is H, C₁-C₂ alkyl, C₃-C₆ cycloalkyl, CH₂(C₃-C₆ cycloalkyl), O(C₁-C₄ alkyl), O-allyl or may be taken together with R¹⁷ as -(CH₂)₄-, -(CH₂)₅- or -(CH₂CH₂OCH₂CH₂)-;
- R¹⁹ is H or C₁-C₂ alkyl;

R²⁰ is H or C(O)CH₃;

R²¹ and R²² are independently H, CN, CO₂R⁴,
C(X)NR¹⁷R¹⁸ or halogen;

R²³, R²⁴, R²⁵ and R²⁶ are independently H; C₁-C₃
5 alkyl; or phenyl optionally substituted with
one or more CH₃, CF₃, OCH₃, SCH₃, or halogen;

R²⁷ and R²⁸ are independently C₁-C₃ alkyl or may be
taken together as -(CH₂)₂- or -(CH₂)₃-
optionally substituted with 1-2 CH₃'s;

10 X is O or S;

R²⁹ is phenyl, pyridyl, thiazolyl, pyrazolyl or
pyrrolyl each optionally substituted with one
or more CH₃, CF₃, OCH₃, SCH₃, or halogen; and

R³⁰ and R³¹ are each independently H; C₁-C₁₀ alkyl;
15 or phenyl optionally substituted with one or
more CH₃, CF₃, OCH₃, SCH₃, or halogen;

and agriculturally suitable salts thereof.

In the above definitions, the term "alkyl" includes
straight chain or branched alkyl, e.g., methyl, ethyl,
20 *n*-propyl, isopropyl or the different butyl isomers,
etc. Cycloalkyl includes cyclopropyl, cyclobutyl,
cyclopentyl and cyclohexyl. The term "halogen" means
fluorine, chlorine, bromine or iodine.

The agriculturally suitable composition of the
25 invention for controlling the growth of undesired
vegetation comprises an effective amount of a compound
of Formula I or II as defined above and at least one of
the following: surfactant, solid or liquid diluent.

The preferred compositions of the invention for
30 reasons including ease of synthesis and/or greater
herbicidal efficacy involve:

1. A compound of Formula I or II wherein
R¹ is Cl, Br or I;

R^2 is CN, CO_2H , CO_2CH_3 , $CO_2CH_2CH_3$, CHO, $C(O)NH_2$, $C(O)NHCH_3$, $C(O)N(CH_3)_2$, CH_2OH or $CH=NOR^7$ or $C(NH_2)=NOR^7$;

5 R^3 is *n*-propyl; C_4 - C_7 alkyl; C_2 alkyl substituted with phenyl optionally substituted with one or more CH_3 , CF_3 , OCH_3 , SCH_3 or halogen; $CH_2(C_3-C_6$ cycloalkyl); phenyl optionally substituted with one or more CH_3 , CF_3 ,
10 OCH_3 , SCH_3 or halogen; or OR^{12} ;

R^{12} is C_2 - C_4 alkyl;

2. A compound of Preferred 1 wherein

R^1 is Cl or Br;

R^2 is CN, CO_2H or $C(O)NH_2$;

15 R^3 is C_4 - C_7 alkyl, $CH_2(C_3-C_6$ cycloalkyl) or OR^{12} .

Specifically preferred is the compound 2-chloro-4-(2-methylpropoxy)benzamide.

Another embodiment of the invention is a method for
20 controlling the growth of undesired vegetation which comprises applying to the locus to be protected an effective amount of a composition comprising a compound of Formula I or II as defined above.

The preferred method of use involves the
25 compositions wherein the above preferred compounds are utilized.

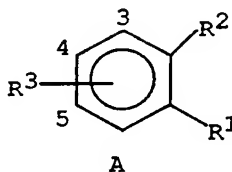
DETAILED DESCRIPTION OF THE INVENTION

The compounds of Formulae I and II can be readily prepared by one skilled in the art by using the
30 reactions and techniques described in Schemes 1 to 17 below. Many of the compounds disclosed herein are known in the art or can be prepared by well known literature procedures.

In some of the schemes, compounds of Formulae I and
35 II are represented by formulae with a floating R^3

substituent wherein R^3 is attached at the 4- and 5-position, respectively (see Formula A below). The definitions of R^1 - R^{31} and X are the same as defined for Formulae I and II above.

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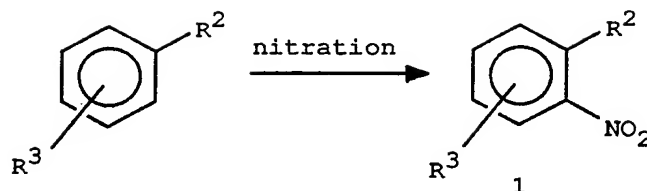
4- R^3 = Formula I5- R^3 = Formula II

In cases where the substituent of a starting material is not compatible with the reaction conditions described for any of the reaction schemes, it can be assumed that the substituent is converted to a protected form prior to the described reaction scheme and then deprotected after the reaction using commonly accepted protecting/ deprotecting techniques (as an example, see T. W. Greene and P. G. M. Wuts, "Protective Groups in Organic Synthesis", 2nd Edition, John Wiley and Sons, Inc., New York, 1991). Otherwise alternative approaches known to one skilled in the art are available.

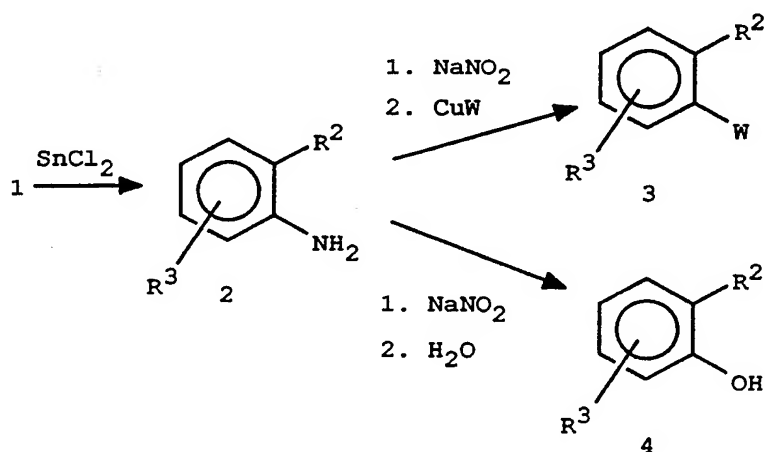
The compounds of this invention are made by the following processes.

Introduction of R^1

Scheme 1 illustrates the preparation of compound 1, a compound of Formula I or II wherein $R^1 = NO_2$. Many nitrobenzenes are commercially available or can be prepared by literature methods. A variety of methods are known in the literature, for example, see J. March, Advanced Organic Chemistry, 3rd Ed., John Wiley and Sons, New York (1985) and references cited therein.

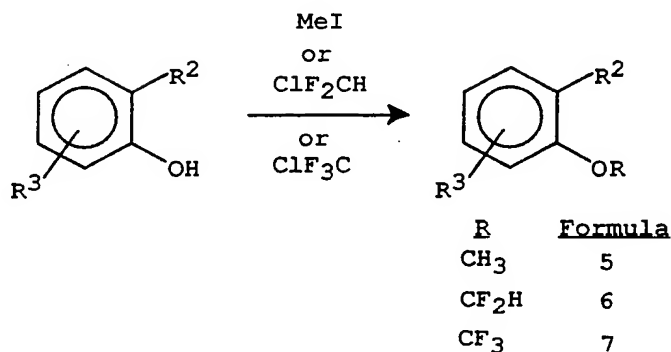
Scheme 1

5 Anilines of Formula 2 can be prepared from nitro
 compounds of Formula 1 by reduction with tin II
 chloride (Scheme 2). Processes of this type are well
 known in the literature. For example, see T. Ho and
 C. M. Hong, *Synthesis* **1974** 45. The aniline of Formula
 10 2 can be converted to the halobenzene of Formula 3
 (W=Cl, Br, or I) using the Sandmeyer reaction.
 Alternatively, the phenol of Formula 4 can be obtained
 from the aniline by preparation of the diazonium salt
 followed by hydrolysis. Methods of these types are
 15 described in Sandler S. R.; Karo W., *Organic Functional
 Group Preparations*, Academic: New York, (1983);
 Chapters 13 and 17.

Scheme 2

Compounds of Formulae I and II wherein R^1 is OCH_3 , $OCHF_2$ or OCF_3 can be prepared by the methods illustrated in Scheme 3.

Scheme 3



Phenols of Formula 4 can be treated with a methylating agent, such as iodomethane or methyl-
 10 sulfate, and a base such as potassium carbonate, potassium hydroxide, potassium hydride, potassium t-butoxide, sodium hydride, sodium hydroxide or sodium carbonate in an inert solvent such as *N,N*-dimethylformamide, benzene, toluene, xylene or tetrahydrofuran.
 15 The reaction temperature ranges from 0-140°C and reaction time is between 30 minutes and 200 hours.

Upon completion of the reaction, the reaction mixture is concentrated under reduced pressure. Water is then added to the residue and extracted with organic
 20 solvent. The organic extract is dried over sodium sulfate or magnesium sulfate and concentrated to provide the crude anisole of Formula 5.

The crude product can be further purified by crystallization, distillation and flash column-
 25 chromatography if needed.

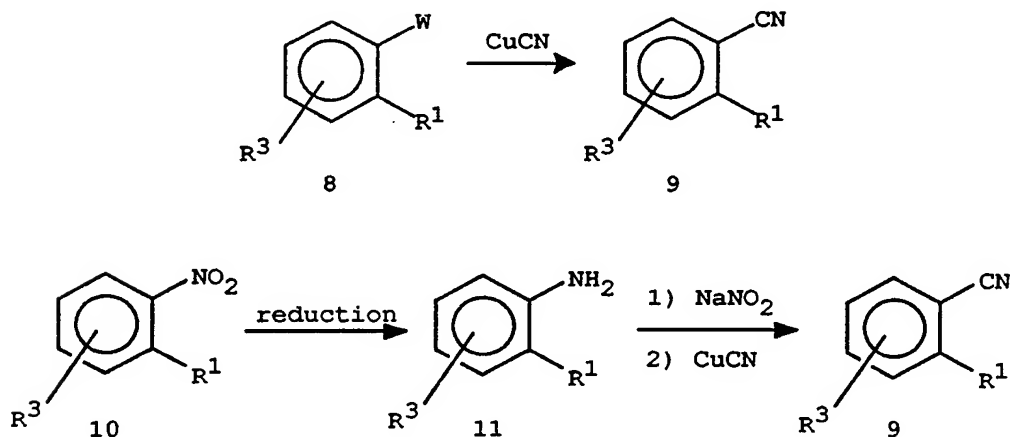
Compounds of Formula 6 and 7 are prepared by treating the phenol of Formula 4 with chlorodifluoromethane or chlorotrifluoromethane, respectively,

under literature conditions (K. Morimoto, K. Makino, S. Yamamoto and G. Sakata, *J. Heterocycl. Chem.*, **1990**, *27*, 807 and Fuss A.; Koch V., *Synthesis*, **1990**, 604 and 681-685).

5 Introduction of \mathbb{R}^2

Benzonitriles of Formula 9 can be prepared from the corresponding halobenzenes of Formula 8 by treatment with potassium cyanide or cuprous cyanide (Scheme 4). The halobenzene is dissolved or dispersed in a solvent such as *N,N*-dimethylformamide or *N*-methyl-2-pyrrolidone and treated with the cyanide salt at temperatures of 120-180°C for 1 to 24 hours. Aqueous work-up followed by purification by distillation, recrystallization, or column chromatography affords the desired material.

15 Scheme 4



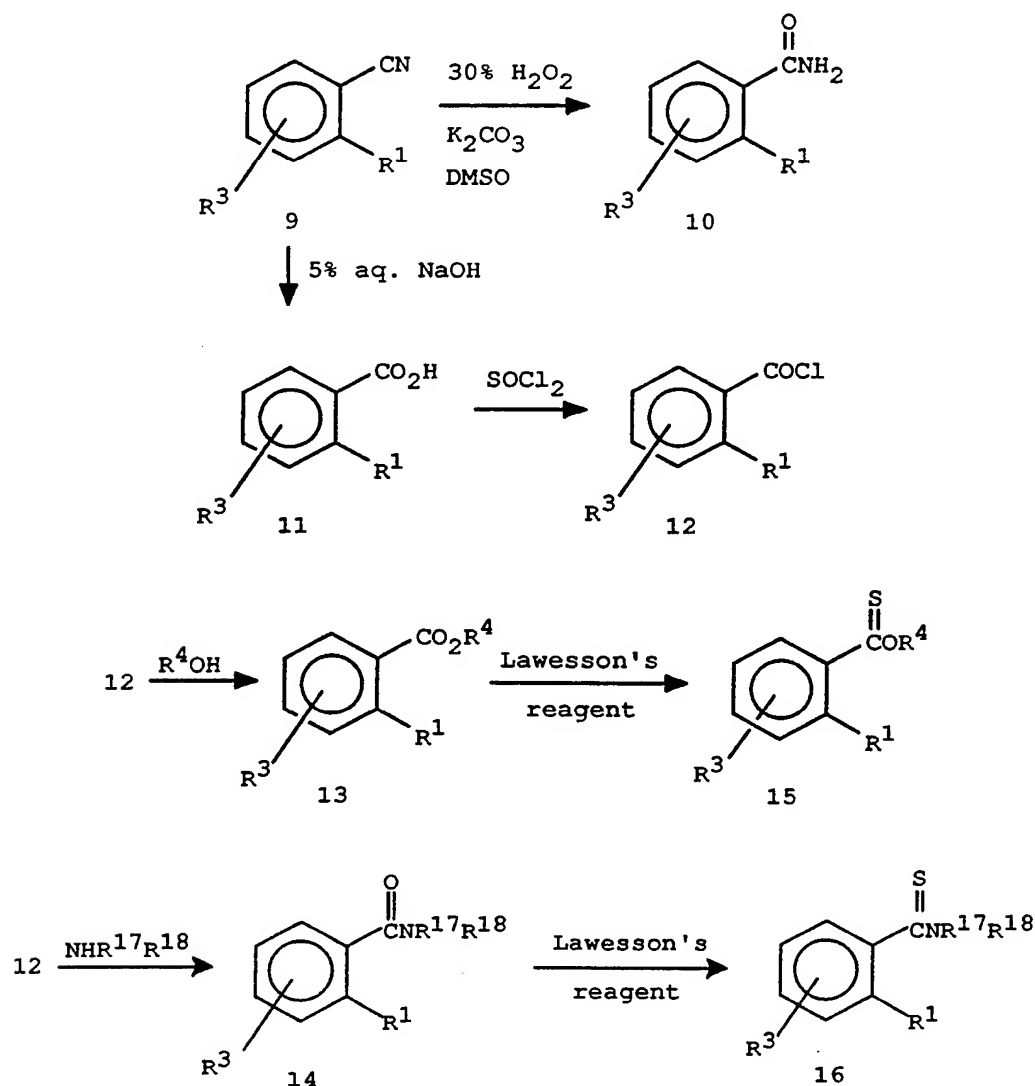
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Alternatively, benzonitriles of Formula 9 can be prepared from nitrobenzenes of Formula 10 as illustrated in Scheme 4. The nitrobenzene is reduced to the aniline of Formula 11 by hydrogenation or 25 methods described above. The aniline of Formula 11 can then be converted to the benzonitrile by formation of the diazonium salt followed by treatment with cuprous cyanide (see Sandler S. R.; Karo W., *Organic Functional*

Group Preparations, Academic: New York, (1983); Chapters 13 and 17).

The benzonitriles of Formula 9 can be converted to compounds of the present invention wherein $R^2 = \text{CO}_2R^4$,
 5 $\text{C}(\text{X})\text{NR}^{17}\text{R}^{18}$, $\text{C}(\text{halogen})=\text{NOR}^7$ and $\text{C}(\text{S})\text{OR}^6$ as illustrated in Scheme 5.

Scheme 5



The cyano compound can be converted to the amide of Formula 10 according to Youngdale G. A.; Ogilia T. F., *J. Med. Chem.* **1985**, 28, 1790-96 using 30% aqueous hydrogen peroxide, methanol and sodium hydroxide or

5 A. Katritzky; B. Pilarski and L. Urogdi, *Synthesis* **1989**, 950 using 30% aqueous hydrogen peroxide, potassium carbonate and dimethylsulfoxide. In addition, the cyano group in compounds of Formula 9 can be converted to carboxylic acids of Formula 11 using

10 about 5-20% aqueous base such as sodium hydroxide or potassium hydroxide (preferably 5%) at about 25 to 100°C for 1 to 24 hours. The carboxylic acid can be converted to the acid chloride of Formula 12 using thionylchloride or phosphorus oxychloride. The acid

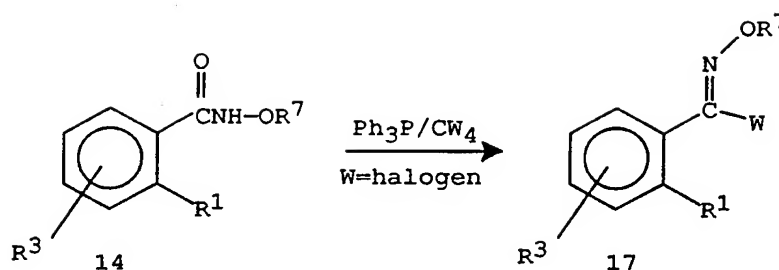
15 chloride may be treated with R^4OH to provide the corresponding ester of Formula 13 under conditions well known to those versed in the art. In an analogous fashion the acid chloride may be treated with $NHR^{17}R^{18}$ to provide the corresponding amide of Formula 14.

20 The thioesters of Formula 15 and the thioamides of Formula 16 can be synthesized by treatment of the aforementioned esters and amides, respectively, with Lawesson's reagent (see Pedersen, B. S., Lawesson, S. O., *Tetrahedron* **1979**, 2433-2437 and

25 references cited therein).

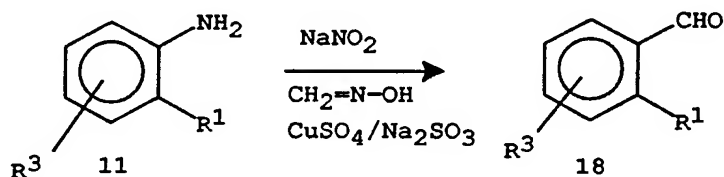
The compounds of Formula 17 can be prepared from the amides of Formula 14 (Scheme 6). The amide is treated with a tetrahalomethane/triphenylphosphine reagent as described in the art (T. Sakamoto et al.,

30 *Synthesis*, **1991**, 9, 950-952 and E. C. Taylor et al., *J. Org. Chem.*, **1971**, 36, 253).

Scheme 6

5 The anilines of Formula 11 can be converted to the benzaldehydes of Formula 18 by following the methods taught in H. E. Baumgarten, Ed. *Organic Syntheses V*, John Wiley, New York (1973) 139-142 or using obvious modifications thereof (Scheme 7).

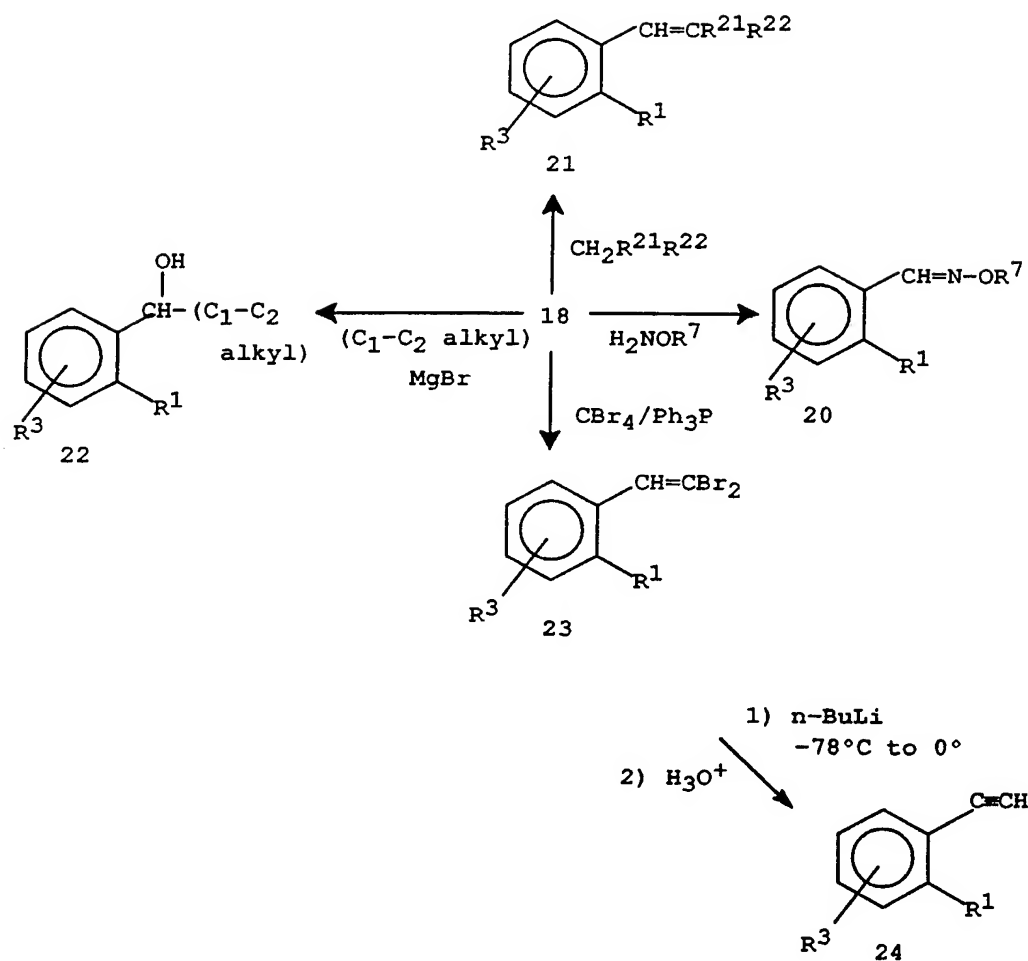
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Scheme 7

15 The benzaldehyde can be oxidized to the corresponding carboxylic acid of Formula 19 using the methods disclosed in Dalcandle, E.; Montanari, F. *J. Org. Chem.* **1986**, 51, 567-569 and Srivastava R. G., Venkataramani *Synth. Commun.* **1988**, 18, 2193-2200. The carboxylic acid functionality can in turn be converted
20 into the R² groups of the present invention as described above and illustrated in Scheme 5.

The benzaldehydes of Formula 18 can also be used to prepare other compounds of the present invention as illustrated in Scheme 8.

Scheme 8



- 5 The benzaldehyde of Formula 18 can be converted to the oxime of Formula 20 by reacting it with NH_2OR^7 . The aldehyde of Formula 18 can also be reacted with active methylene compounds of the type $\text{CH}_2\text{R}^{21}\text{R}^{22}$ and a base such as pyridine and potassium carbonate to
- 10 provide the olefin of Formula 21. The secondary alcohol of Formula 22 ($\text{R}^2=\text{CH}(\text{C}_1\text{-C}_2 \text{ alkyl})\text{OH}$) can be prepared by treatment of the benzaldehyde with $(\text{C}_1\text{-C}_2 \text{ alkyl})\text{MgBr}$. Alcohols of Formulae I and II wherein $\text{R}^2=\text{CH}_2\text{OH}$ can be prepared by conventional

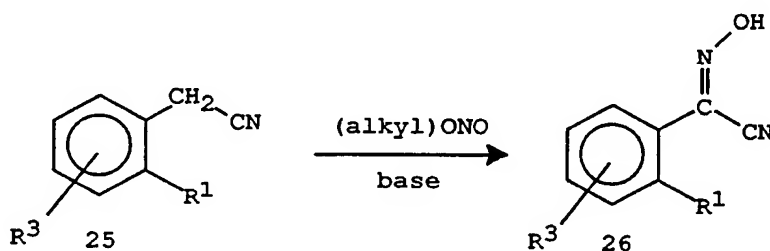
reduction of benzaldehydes of Formula 18. These benzylic alcohols and the alcohols of Formula 22 can be treated with acetyl chloride or acetic anhydride under standard conditions to prepare compounds wherein R^{20} is

5 $C(O)CH_3$.

The terminal alkyne of Formula 24 can be synthesized from the benzaldehyde of Formula 18 by the Corey-Fuchs homologation by treating the aldehyde first with carbon tetrabromide/triphenylphosphine to form the
10 dibromoolefin of Formula 23, followed by treatment with *n*-butyllithium, rearrangement and quench with aqueous acid according to Corey, E. J., Fuchs, P. L., *Tetrahedron Lett.* **1972**, 3769-3772 and references cited therein.

15 Cyanooximes of Formula 26 wherein $R^2 = C(CN)=NOR^7$ can be prepared as illustrated in Scheme 9. The phenylacetonitrile of Formula 25 is treated with an alkyl nitrite under basic conditions using the procedures described in Noland, W. E., ed., *Organic*
20 *Syntheses VI*, John Wiley: New York (1988), pp 199-203.

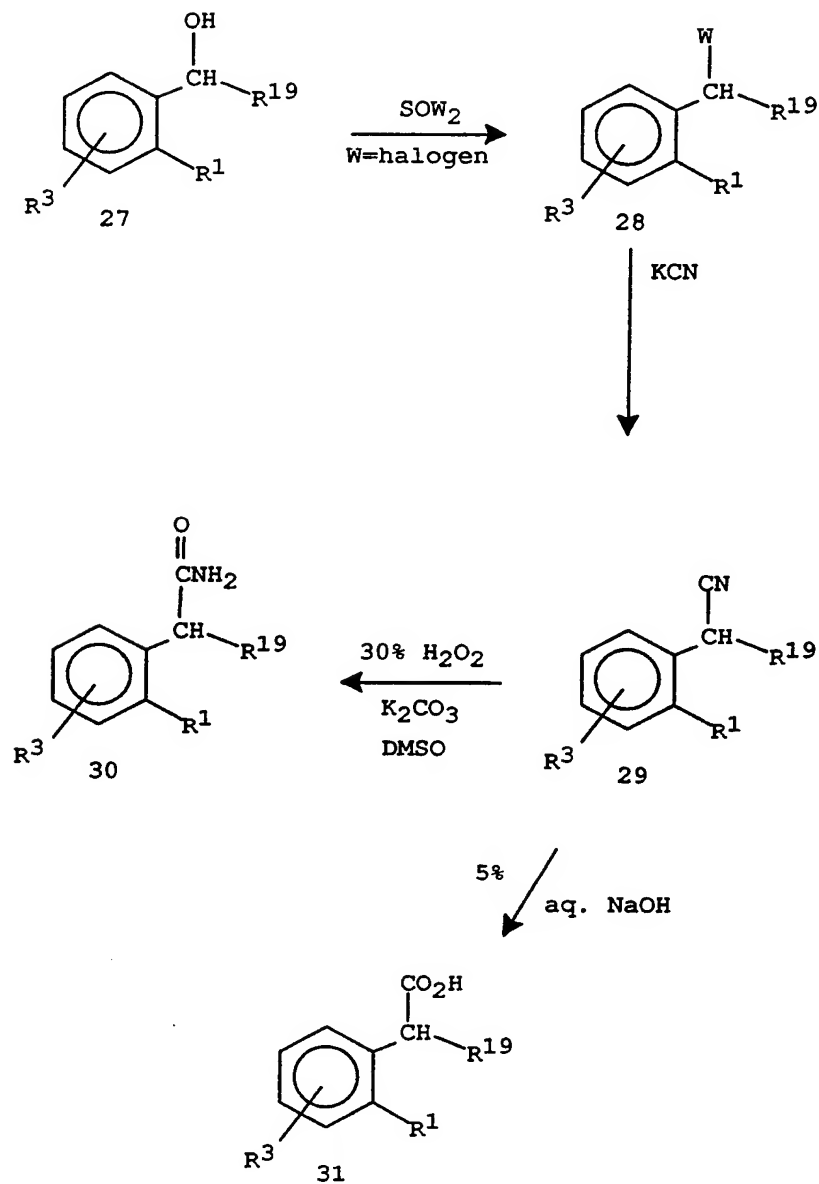
Scheme 9



25 Compounds of Formula I and II wherein $R^2 = CHR^{19}(halogen)$, $CHR^{19}CN$, $CHR^{19}C(=O)NH_2$, and $CHR^{19}CO_2H$ can be prepared using the methods illustrated in Scheme 10. The alcohol of Formula 27 can be prepared using the method described in Scheme 8

(R^{19} = C_1 - C_2 alkyl) or by conventional reduction of the benzaldehyde as described previously (R^{19} = H).

Scheme 10



Treatment of the benzylic alcohol with a thionyl-
 10 halide (e.g., thionylchloride) at 25-100°C in an inert
 solvent such as benzene, toluene or dichloromethane for

2-12 hours produces the halide of Formula 28.

Displacement of the halide with a cyanide salt, for example potassium cyanide, produces the nitrile of Formula 29. This method is described in Sandler, S.

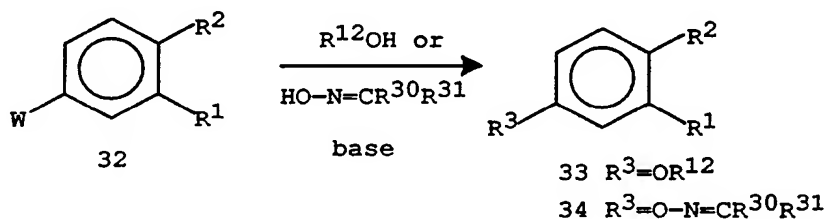
5 R., Karo, W. in *Organic Functional Group Preparations*, Academic: New York (1983); Chapter 17. The nitrile can be converted to the amide of Formula 30 or the carboxylic acid of Formula 31 using conditions described above for the conversion of nitriles to amides
10 and acids (see Scheme 5).

Introduction of R³

Scheme 11 illustrates the preparation of compounds of Formula II wherein R³ = OR¹² or O-N=CR³⁰R³¹. In order for the nucleophilic aromatic substitution to
15 occur, R² must be a powerful electron-withdrawing substituent such as cyano or nitro. The halobenzenes of Formulae 23 and 24 are either commercially available or can be prepared by one skilled in the art using well known methods.

20

Scheme 11



The halobenzene 32 is treated with R¹²OH or
25 HO-N=CR³⁰R³¹ and one equivalent of a base such as sodium hydride, potassium hydride, potassium hydroxide, potassium t-butoxide and sodium hydroxide in an inert solvent such as *N,N*-dimethylformamide, benzene, toluene, xylene and tetrahydrofuran. The reaction

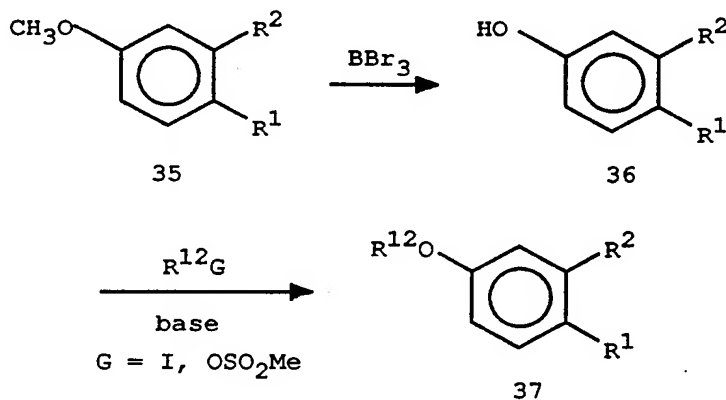
temperature ranges from 0 to 140°C and reaction time is between 30 minutes and 120 hours.

Upon completion of the reaction, the reaction mixture is concentrated under reduced pressure. Water is then added to the residue and extracted with organic solvent. The organic extract is dried and concentrated to provide crude product. The crude phenylether of Formula 33 or 34 can be further purified by flash column chromatography if needed.

In a similar fashion, $R^{13}SH$ and $R^{14}R^{15}NH$ can be used instead of $R^{12}OH$ or $HO-N=CR^{30}R^{31}$ in the process illustrated in Scheme 11 to afford compounds of Formula II wherein $R^3=R^{13}S$ and $R^{14}R^{15}N$, respectively.

Compounds of Formula I wherein $R^3=OR^{12}$ can be synthesized as illustrated in Scheme 12. The anisoles of Formula 35 are commercially available or can be synthesized by one skilled in the art by following literature methods or slight modifications thereof. Alternatively, the phenols of Formula 36 can be prepared from the nitro compounds as described above (see Scheme 2).

Scheme 12



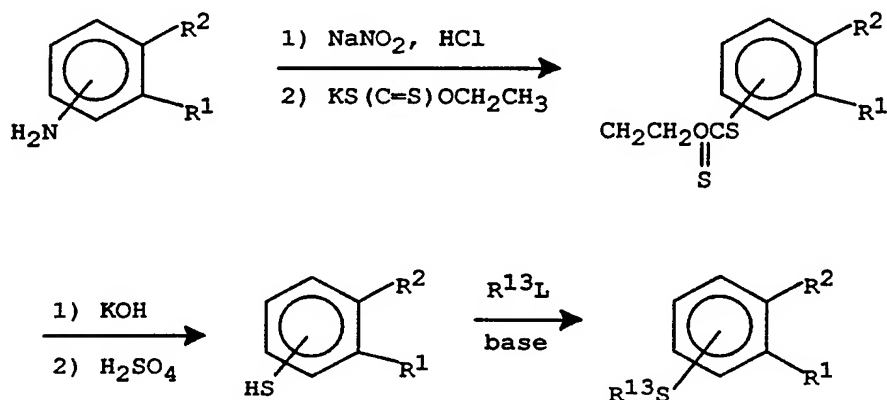
The complete demethylation of the methylether can be accomplished using boron tribromide (BBr_3) or other

reagents described in a review by M. V. Bhatt and S. U. Kulkarni, *Synthesis* **1983**, 248-282. The phenol then can be alkylated to produce the R^{12} ether of Formula 37.

The thiols can be prepared using the well-known methods four step procedure for converting anilines to thiols illustrated in Scheme 13. These synthetic steps are described in detail in Sandler, S. R.; Karo, W., *Organic Functional Group Preparations*, Academic: New York (1983), Chapters 16, 13, 4 and 18, respectively.

Alkylation of the sulfur with $R^{13}L$ wherein L is a typical leaving group such as bromide, under standard conditions affords compounds of Formulae I and II wherein $R^3 = SR^{13}$.

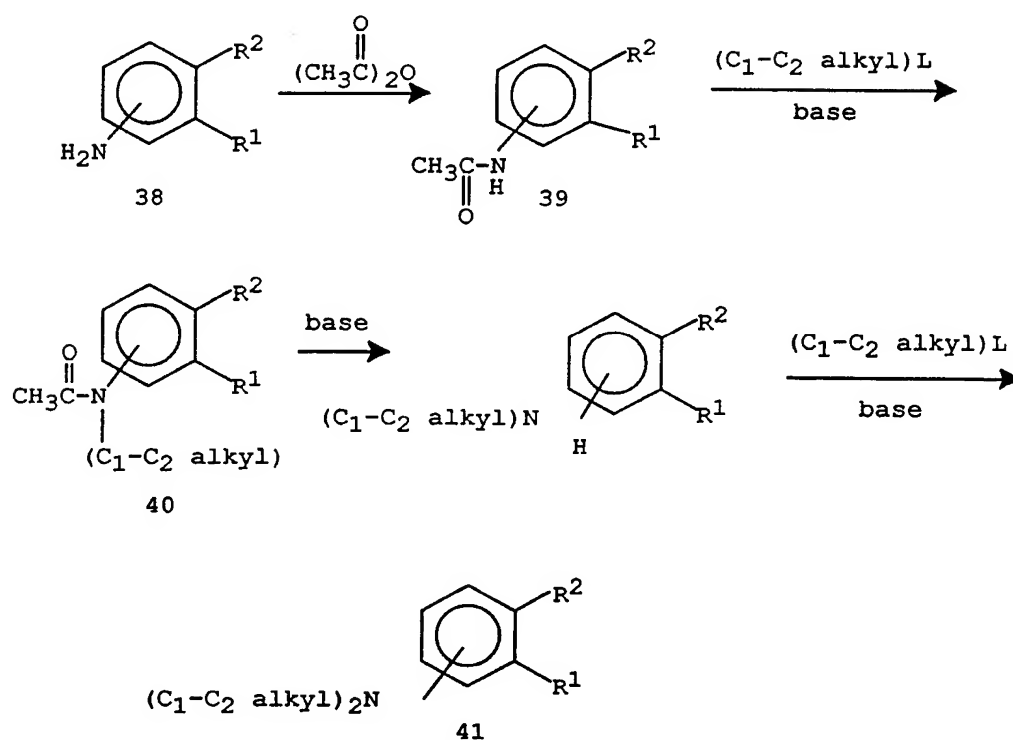
Scheme 13



Compounds of Formulae I and II wherein R^3 is a mono- or disubstituted amino group and R^{14} and R^{15} are separate substituents can be prepared as illustrated in Scheme 14. Treatment of the aniline of Formula 38 with acetic anhydride affords the monoacetyl compound of Formula 39. N-Alkylation with $(C_1-C_2 \text{ alkyl})L$, wherein L is a leaving group such as iodide, affords compounds of Formula 40. Hydrolysis of the acetyl group with base affords the monoalkyl compound. A second

alkylation with $(C_1-C_2 \text{ alkyl})L$ affords the disubstituted compound of Formula 41.

Scheme 14



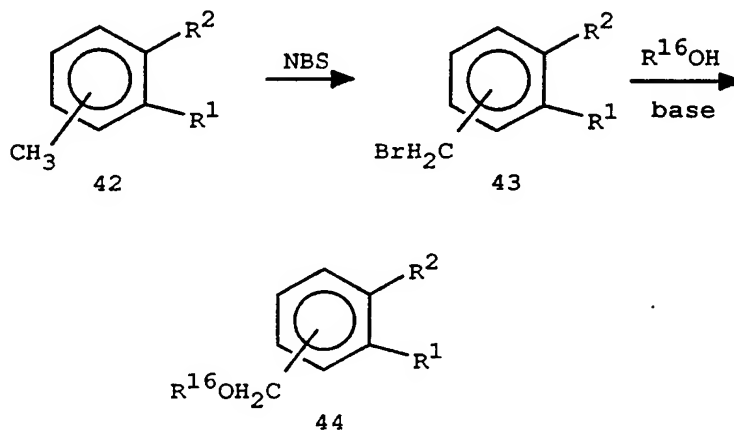
5

Compounds of Formulae I and II wherein R^{14} and R^{15} are taken together to form a ring can be prepared by nucleophilic aromatic substitution as described above (Scheme 11). Alternatively, the aniline of Formula 38 in Scheme 14 may be alkylated with $L-(CH_2)_4-L$, $L-(CH_2)_5-L$ or $L-(CH_2)_2O(CH_2)_2-L$ to form the pyrrolidinyl, piperidinyl, and morpholinyl compounds, respectively.

Compounds of Formulae I and II wherein $R^3=CH_2OR^{16}$, CH_2SR^9 , and $CH_2NR^{14}R^{15}$ can be prepared starting from toluenes as illustrated in Scheme 15. The starting toluenes are commercially available or can be prepared

by one skilled in the art following literature methods or obvious modifications thereof.

Scheme 15



5

Toluenes of Formula 42 can be converted to bromomethyl compounds of Formula 43 using one equivalent of *N*-bromosuccinimide (NBS) in a solvent such as dichloromethane or carbon tetrachloride at a temperature between 25-100°C for 1 to 48 hours. The bromo compound can be converted to ethers of Formula 44 using R^{16}OH and a base such as triethylamine, pyridine or potassium carbonate in an inert solvent such as *N,N*-dimethylformamide, benzene, toluene, xylene or tetrahydrofuran. The reaction temperature ranges from 0 to 140°C and reaction time is between 1 hour and 120 hours.

The bromo compound of Formula 43 can be reacted with R^9SH or $\text{R}^{14}\text{R}^{15}\text{NH}$ instead of R^{14}OH using the same procedure outlined in Scheme 15 to prepare compounds of Formulae I and II wherein $\text{R}^3 = \text{CH}_2\text{SR}^9$ or $\text{CH}_2\text{NR}^{14}\text{R}^{15}$.

Scheme 16 illustrates the synthesis of compounds of Formulae I and II wherein R^3 is *n*-propyl; $\text{C}_4\text{-C}_{10}$ alkyl; *n*-propyl or $\text{C}_4\text{-C}_7$ alkyl substituted with one or more halogen, OR^8 , SR^9 or $\text{NR}^{10}\text{R}^{11}$; $\text{C}_1\text{-C}_3$ alkyl substituted

with OR^{16} , SR^9 , $\text{NR}^{14}\text{R}^{15}$, $\text{CO}_2(\text{C}_1\text{-C}_2 \text{ alkyl})$, or phenyl optionally substituted with one or more CH_3 , CF_3 , OCH_3 , SCH_3 or halogen; $\text{CH}_2(\text{C}_3\text{-C}_6 \text{ cycloalkyl})$, or $\text{C}_3\text{-C}_6 \text{ alkenyl}$ optionally substituted with one or more halogen or

5 $\text{CO}_2(\text{C}_1\text{-C}_2 \text{ alkyl})$.

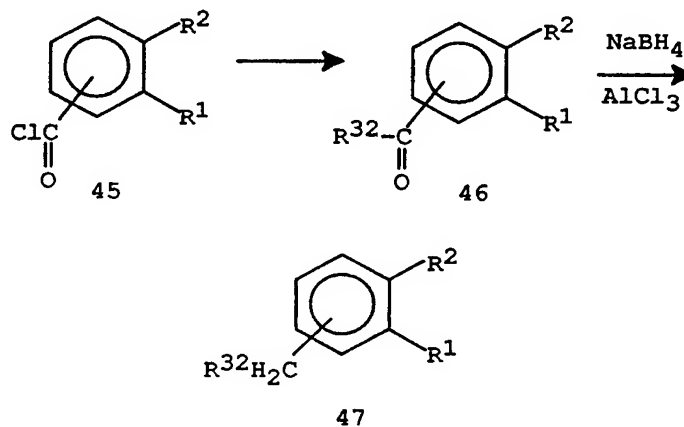
The R^{32} group in the Formulae of Scheme 16 can be *n*-ethyl; $\text{C}_3\text{-C}_9 \text{ alkyl}$; *n*-ethyl or $\text{C}_3\text{-C}_6 \text{ alkyl}$ substituted with one or more halogen, OR^8 , SR^9 or $\text{NR}^{10}\text{R}^{11}$; $\text{C}_1\text{-C}_2 \text{ alkyl}$ substituted with OR^{16} , SR^9 , $\text{NR}^{14}\text{R}^{15}$,

10 $\text{CO}_2(\text{C}_1\text{-C}_2 \text{ alkyl})$, or phenyl optionally substituted with one or more CH_3 , CF_3 , OCH_3 , SCH_3 or halogen; $\text{C}_3\text{-C}_6 \text{ cycloalkyl}$; or $\text{C}_2\text{-C}_5 \text{ alkenyl}$ optionally substituted with one or more halogen or $\text{CO}_2(\text{C}_1\text{-C}_2 \text{ alkyl})$.

The acid chlorides of Formula 45 are commercially

15 available or can be prepared using the methods disclosed herein or commonly known to one skilled in the art.

Scheme 16



20

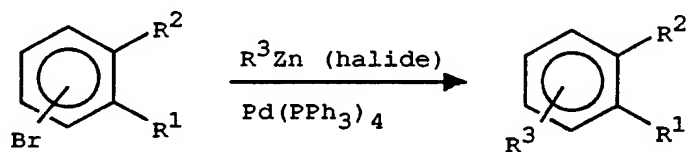
The acid chlorides of Formula 45 can be converted to ketones of Formula 46 using the methods described in Sandler S.R.; Karo W.; *Organic Functional Group*

25 *Preparation*; Academic; New York, (1983); Chapter 8. The ketones of Formula 46 can be reduced to the

methylene compounds of Formula 47 using a variety of reducing agents, for example sodium borohydride/aluminum chloride, as described in Hudlicky, M., *Reductions in Organic Chemistry*, Ellis Horwood: New York; (1984) 107-132.

Compounds of Formulae I and II wherein R^3 = alkyl or optionally substituted phenyl, pyridyl, thienyl, furyl, pyrazolyl, or thiazolyl can be prepared using a palladium-catalyzed cross-coupling reaction as illustrated in Scheme 17.

Scheme 17



Treatment of a phenyl bromide with an organozinc reagent of Formula $R^3Zn(halide)$ in the presence of tetrakis(triphenylphosphine)palladium (0) affords the R^3 substituted compounds of Formulae I and II. Examples of this well-known procedure can be found in: Y. Okamoto et al., *J. Organomet. Chem.* **1989**, 369, 285-290; E. Erdik, *Tetrahedron*, **1992**, 48, 9577-9648; Heathcock, C. H., ed. *Organic Syntheses*, Vol. 66, John Wiley: New York (1987), pp 67-74; and E. Negishi et al., *J. Org. Chem.*, **1977**, 42, 1821-1823.

Compounds of Formulae I and II wherein R^3 is optionally substituted phenyl, furyl, thienyl or pyridyl can also be prepared by palladium-catalyzed cross-coupling with arylboronates using the procedures described in N. Miyaoura et al., *Synth. Commun.*, **1981**, 11, 513, M. A. Siddiqui, V. Snieckus, *Tetrahedron Lett.*, **1988**, 5463, and W. J. Thompson et al., *J. Org. Chem.*, **1988**, 53, 2052.

In addition, compounds of Formulae I and II wherein R^3 is optionally substituted pyridyl, thiazolyl, pyrrolyl, thienyl or furyl can be prepared by palladium-catalyzed cross-coupling with heteroaryl trialkylstannanes. Examples of this procedure are also known in the literature. For example, see T. R. Bailey, *Tetrahedron Lett.*, **1986**, 4407 and A. Minato et al., *Tetrahedron Lett.*, **1981**, 5319.

EXAMPLE 1

10 Step A: Preparation of methyl 2-chloro-4-hydroxy benzoate

Under nitrogen, 6 g of thionyl chloride was added dropwise to ice cold (0°C) methanol (50 mL). The mixture was stirred at ambient temperature for 30 minutes. To this solution was then added 8.6 g of 2-chloro-4-hydroxy benzoic acid. The resulting mixture was heated at reflux for ~12 hours and then concentrated under reduced pressure. The residual solid was suspended in 100 mL of a mixture of hexane: diethyl ether (90:10) and the solid precipitate was collected by filtration, washed with hexane, air dried and then dried in a vacuum oven to provide 6 g of the title product of Step A as a solid, m.p. 126-129°C; NMR (CDCl₃): ppm δ 7.84 (d, 1H); 6.96 (s, 1H); 6.78 (d of d, 1H); 6.35 (b, s, 1H); 3.9 (s, 3H); IR (Nujol): 3300 cm⁻¹, 1700 cm⁻¹ (C=O).

Step B: Preparation of Methyl 2-chloro-4-(2-methyl-propyloxy)benzoate

To 3 g of methyl 2-chloro-4-hydroxy benzoate in *N,N*-dimethyl formamide (25 mL), a solution of 3 g of 2-methyl-1-bromo propane in *N,N*-dimethylformamide (5 mL) and 3 g of potassium carbonate was added. The mixture was then heated at 90-95°C for 2 hours. After heating the mixture was cooled to room temperature and poured into water (100 mL). The mixture was then

extracted with diethylether (2 times with 50 mL). The diethylether extracts were combined, dried over magnesium sulfate and concentrated under reduced pressure to provide crude product. The isolated crude
5 product was purified by silica gel flash column chromatography (Hexane: ethyl-acetate 8:2) to provide after evaporation of eluant 3 g of the title compound of Step B as a clear oil; NMR (CDCl₃): ppm δ 7.88 (d, 1H); 7.0 (s, 1H); 6.8 (d, 1H); 3.89 (s, 3H); 3.74
10 (d, 2H); 2.0 (m, 1H); 1.035 (d, 6H); IR (Neat): 1730 cm⁻¹ (C=O).

EXAMPLE 2

Preparation of 2-chloro-4-(2-methyl-propyloxy)benzoic acid

15 A mixture of 5 g of methyl 2-chloro-4-hydroxy benzoate, and 1.6 g potassium hydroxide in methanol (30 mL) was heated at reflux for ~3 hours and allowed to stir at ambient temperature for 12 hours. The reaction mixture was concentrated under reduced
20 pressure. The residue was dissolved in water (50 mL) and extracted with diethyl ether (25 mL) and the diethyl ether extracts were discarded. The aqueous extract was acidified with concentrated hydrochloric acid to pH ~4 and the resulting solids were collected
25 by filtration, washed with water (50 mL), hexane (50 mL) and dried under vacuum overnight to provide 4.5 g of title compound as a white solid, m.p. 82-84°C; NMR (CDCl₃): ppm δ 8.0 (d, 1H); 7.0 (s, 1H); 6.8 (d, 1H); 3.78 (d, 2H); 2.1 (m, 1H); 1.02 (d, 6H); IR
30 (Nujol): 1700 cm⁻¹ (C=O).

EXAMPLE 3

Preparation of 2-chloro-4-(2-methylpropyl-oxy)benzamide

Under nitrogen, 2.6 g of 2-chloro-4-(2-methyl-propyloxy)benzoic acid was dissolved in benzene (25 mL)
35

and thionyl chloride (5 mL) was added. The resulting solution was heated at reflux for 3 hours and concentrated under reduced pressure to provide an oil. The oil was dissolved in tetrahydrofuran (20 mL) and
5 cooled to 0°C (ice bath) and 4 mL of aqueous ammonium hydroxide (30%) was added and stirred for 30 minutes. The mixture was concentrated under reduced pressure. To the residue, water (100 mL) was added and the resulting precipitate was collected by filtration,
10 washed with water and dried under vacuum to provide 1.4 g of the title compound as a white solid, m.p. 129-130°C; NMR (CDCl₃): ppm δ 7.85 (d, 1H); 6.92 (s, 1H); 6.86 (d, 1H); 6.6 (b,s, 1H); 6.5 (b,s, 1H); 3.74 (d, 2H); 2.2 (m, 1H); 1.03 (d, 6H); IR (Nujol): 3360,
15 3170 cm⁻¹ (NH₂), 1635 cm⁻¹ (C=O).

EXAMPLE 4

Step A: Preparation of 2-bromo-5-hydroxy-benzoic acid

Under nitrogen, 4.62 g of 2-bromo-5-methoxy benzoic acid was suspended in dichloromethane (50 mL). The
20 mixture was cooled to 0°C and boron tribromide (60 mL, 1M solution in dichloromethane) was added dropwise. The clear solution was stirred at ambient temperature for 12 hours, cooled to 5°C. Water (25 mL) was subsequently added dropwise, the mixture stirred for 30
25 minutes and extracted with diethylether (2 times with 50 mL). The diethylether extracts were dried over magnesium sulfate and concentrated under reduced pressure to provide 2.2 g of the title compound of
Step A as a solid, m.p. 179-181°C; NMR (Me₂SO-d₆): ppm
30 δ 10.0 (b,s, 1H); 7.48 (d, 1H); 7.13 (s, 1H); 6.8 (m, 1H); IR (Nujol): 1705 cm⁻¹ (C=O).

Step B: Preparation of methyl 2-bromo-5-hydroxy-benzoate

By the procedure of Example 1, Step A, 1.67 g of
35 2-bromo-5-hydroxy-benzoic acid was reacted with 5 mL

thionyl chloride in methanol (20 mL). The isolated crude product was washed with hexane and dried under vacuum to provide 1.8 g of title compound of Step B as a white solid, m.p. 92-95°C; NMR (CDCl₃): ppm δ 7.5 (d, 1H); 7.3 (m, 1H); 6.8 (m, 1H); 3.94 (s, 3H); IR (Nujol): 3400 cm⁻¹ (OH); 1700 cm⁻¹ (C=O).

Step C: Preparation of Methyl 2-bromo-5-(2-methyl-propyloxy)benzoate

By the procedure of Example 1, Step B, 1.2 g of methyl 2-bromo-5-hydroxy-benzoate was reacted with 0.816 g potassium carbonate and 0.816 g of 2-methyl-1-bromopropane in N,N-dimethylformamide (20 mL). The isolated crude product was purified by silica gel flash column chromatography (hexane: ethylacetate 8:2) to provide after evaporation of eluant 1 g of the title compound of Step C as an oil. NMR (CDCl₃): ppm δ 7.53 (d, 1H); 7.31 (m, 1H); 6.8 (d of d, 1H); 3.92 (s, 3H); 3.7 (d, 2H); 2.0 (m, 1H); 1.03 (d, 6H); IR (neat): 1740 cm⁻¹ (C=O).

20

EXAMPLE 5

Preparation of Methyl 2-bromo-5-(2-methyl-propyloxy)benzoic acid

By the procedure of Example 2, 5.5 g of methyl 2-bromo-5-(2-methylpropyloxy)-benzoate was reacted with 1.7 g of potassium-hydroxide in methanol (50 mL) to provide 5 g of title compound as a white solid mp 105-109°C. NMR (CDCl₃): ppm δ 7.57 (d, 1H); 7.52 (s, 1H); 6.95 (m, 1H); 3.74 (d, 2H); 2.1 (m, 1H); 1.04 (d, 6H); IR (Nujol): 1665 cm⁻¹ (C=O).

30

EXAMPLE 6

Preparation of 2-Bromo-5-(2-methyl-propyloxy)benzamide

By the procedure of Example 3, 1.36 g of product of Example 5 was reacted first with thionylchloride 5 mL, and then 1.7 mL of aqueous ammonium hydroxide to

provide 1 g title compound as a white solid mp 135-137°C. NMR (CDCl₃): ppm δ 7.47 (d, 1H); 7.21 (s, 1H); 6.8 (d of d, 1H); 6.2 (b,s, 1H); 6.0 (b,s, 1H); 3.72 (d, 2H); 2.0 (m, 1H); 1.02 (d, 6H); IR (Nujol): 3350 cm⁻¹ (NH₂) 1640 cm⁻¹ (C=O).

EXAMPLE 7

Preparation of 2-Chloro-4-(3-trifluoromethylphenyl)benzonitrile

To 5.4 g of 2-chloro-4-bromo-benzonitrile in 8 mL of ethylene glycol dimethyl ether, 0.01 g of (Ph₃P)₂PdCl₂ was added and stirred at ambient temperature for 15 minutes. To this mixture 5.23 g of 3-trifluoromethylbenzeneboronic acid and 6.38 g of sodium bicarbonate in 40 mL water were added and heated at reflux for 2.5 h. The mixture was then cooled to ambient temperature and extracted two times with 50 mL ethyl acetate. The combined ethyl acetate extracts were washed with 150 mL of 0.5 N aqueous sodium hydroxide and 50 mL of brine. The ethyl acetate extracts were dried over magnesium sulfate and concentrated under reduced pressure to provide the title compound as a white solid, m.p. 92-98°C. ¹H-NMR (CDCl₃): ppm δ 7.73 (m, 5H); 7.58 (m, 2H); 7.59 (m, 1H). IR (Nujol): 2227 (C≡N) cm⁻¹.

EXAMPLE 8

Preparation of 2-Chloro-4-(3-trifluoromethylphenyl)benzamide

To a solution of 1.41 g of the compound of Example 7 in dimethylsulfoxide (8 mL), 1.12 mL of 30% aqueous hydrogen peroxide and 0.28 g of potassium carbonate were added. The mixture exothermed to ~35°C; and was then heated to 60°C for 1 h. The mixture was allowed to come to room temperature and poured into water (50 mL). The resulting solid was collected, washed with 50 mL of water and hexanes and dried under

vacuum overnight to provide the title compound as a white solid, m.p. 138-145°C. ^1H NMR (CDCl_3): ppm δ 7.95 (d, 1H); 7.75 (m, 2H); 7.66 (m, 4H); 6.5 (bs, 1H); 6.0 (bs, 1H). IR (Nujol): 3367 (NH_2) cm^{-1} , 1649 (C=O) cm^{-1} .

EXAMPLE 9

Preparation of 2-Chloro-4-(2-methyl-propyl)benzonitrile

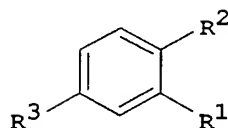
Under nitrogen, isobutylmagnesium chloride (8.6 mL, 2.0 M solution in diethyl ether) was added to a suspension of 2.3 g of zinc chloride in 40 mL of tetrahydrofuran. The mixture was stirred at ambient temperature for 45 minutes. To this mixture was then added 3.6 g of 2-chloro-4-bromo benzonitrile and 0.4 g of tetrakis(triphenylphosphine) palladium (0). The resulting mixture was stirred at ambient temperature for 12 h, and then heated at reflux for 2 h. The mixture was then cooled to room temperature and acidified with 1 N aqueous hydrochloric acid. The mixture was then extracted two times with 50 mL of diethyl ether. The organic layer was washed each with 20 mL of saturated aqueous NaHCO_3 , water and brine. The diethyl ether extract was dried over magnesium sulfate and concentrated under reduced pressure to provide crude product. The isolated crude product was purified by silica gel flash column chromatography (hexane:ethyl acetate 9:1) to provide after evaporation of eluant 2.12 g of the title compound as a clear oil; ^1H NMR (CDCl_3): ppm δ 7.57 (d, 1H); 7.3 (s, 1H); 7.15 (d, 1H); 2.51 (d, 2H); 1.9 (m, 1H); 0.91 (d, 6H); IR (Neat): 2210 ($\text{C}\equiv\text{N}$) cm^{-1} .

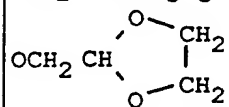
EXAMPLE 10Preparation of 2-Chloro-4-(2-methyl-
propyl)benzamide

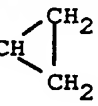
Using the same procedure described in Example 8,
5 0.97 g of product of Example 9 was reacted with 1.12 mL
30% aqueous hydrogen peroxide and 0.28 g potassium
carbonate in dimethylsulfoxide (8 mL). The isolated
crude product was washed with hexanes and dried under
vacuum to provide 0.8 g of the title compound as a
10 white solid, m.p. 97-107°C. ^1H NMR (CDCl_3): ppm δ
7.74 (d, 1H); 7.2 (s, 1H); 7.125 (d, 1H); 6.43 (bs,
1H); 6.05 (bs, 1H); 2.48 (d, 2H); 1.9 (m, 1H); 0.91 (d,
6H). IR (Neat): 3375 (NH_2) cm^{-1} , 1647 (C=O) cm^{-1} .

Using the general procedures described in Schemes
15 1-17 and Examples 1-10 or by obvious modifications
thereof, one skilled in the art can prepare the
compounds of Tables 1-2.


TABLE 1



| | | |
|--|--|---|
| R ¹ =Cl, R ² =C(O)NH ₂ | cyclobutyl | CH ₂ S (3SCH ₃ -C ₆ H ₄) |
| R ³ | cyclopentyl | CH ₂ S (2, 6Cl-C ₆ H ₃) |
| (CH ₂) ₂ CH ₃ | cyclohexyl | CH ₂ S (C ₆ H ₅) |
| (CH ₂) ₃ CH ₃ | CH ₂ OCH ₂ CH ₃ | CH ₂ S (3CF ₃ -C ₆ H ₄) |
| (CH ₂) ₄ CH ₃ | CH ₂ OCH ₂ CH ₂ CH ₃ | CH ₂ S (2Cl-C ₆ H ₄) |
| (CH ₂) ₅ CH ₃ | CH ₂ OCH ₂ CH (CH ₃) ₂ | CH ₂ S (4CH ₃ -C ₆ H ₄) |
| (CH ₂) ₆ CH ₃ | CH ₂ OCH ₂ (C ₆ H ₅) | CH ₂ S (2, 6Cl-C ₆ H ₃) |
| (CH ₂) ₇ CH ₃ | CH ₂ OCH ₂ (3CF ₃ -C ₆ H ₄) | CH ₂ S (2, 4Cl-C ₆ H ₃) |
| (CH ₂) ₈ CH ₃ | CH ₂ OCH ₂ (2Cl-C ₆ H ₄) | CH ₂ NHCH ₂ CH ₃ |
| (CH ₂) ₉ CH ₃ | CH ₂ OCH ₂ (3SCH ₃ -C ₆ H ₄) | CH ₂ NHCH ₂ CH ₂ CH ₃ |
| CH ₂ CH (CH ₃) ₂ | CH ₂ OCH ₂ (4Cl-C ₆ H ₄) | CH ₂ NHCH ₂ C (C ₆ H ₅) |
| CH ₂ C (CH ₃) ₃ | CH ₂ OCH ₂ (2, 4F-C ₆ H ₃) | CH ₂ NHCH ₂ CH (CH ₃) ₂ |
| CH ₂ CH ₂ CH (CH ₃) ₂ | CH ₂ CH ₂ OCH ₂ CH ₂ CH ₃ | CH ₂ NHCH ₂ (3CF ₃ -C ₆ H ₄) |
| CH ₂ CH ₂ CH ₂ CH (CH ₃) ₂ | CH ₂ O (C ₆ H ₅) | CH ₂ NHCH ₂ (2Cl-C ₆ H ₄) |
| CH ₂ CH ₂ CH (CH ₃)CH ₂ CH ₂ CH ₃ | CH ₂ O (3CF ₃ -C ₆ H ₄) | CH ₂ NH (C ₆ H ₅) |
| CH ₂ CH (CH ₃)CH ₂ CH ₂ CH ₃ | CH ₂ O (4CF ₃ -C ₆ H ₄) | CH ₂ NH (2Cl-C ₆ H ₄) |
| CH ₂ CH (CH ₂ CH ₃)CH ₂ CH ₃ | CH ₂ O (2Cl-C ₆ H ₄) | CH ₂ N (CH ₃) (2Cl-C ₆ H ₄) |
| CH ₂ CH ₂ CH ₂ OCH ₂ CH ₃ | CH ₂ O (3SCH ₃ -C ₆ H ₄) | OCH ₂ CH ₂ CH ₃ |
| CH ₂ CH ₂ CH ₂ CH ₂ OCH ₃ | CH ₂ O (2CH ₃ -C ₆ H ₄) | OCH ₂ (CH ₂) ₂ CH ₃ |
| CH ₂ CH ₂ CH ₂ -S-CH ₂ CH ₃ | CH ₂ O (4Cl-C ₆ H ₄) | OCH ₂ (CH ₂) ₃ CH ₃ |
| CH ₂ CH ₂ CH ₂ CH ₂ SCH ₃ | CH ₂ O (2, 4Cl-C ₆ H ₃) | OCH ₂ (CH ₂) ₅ CH ₃ |
| CH ₂ CH ₂ CH ₂ NHCH ₂ CH ₃ | CH ₂ SCH ₂ CH ₃ | OCH ₂ C (C ₆ H ₅) |
| CH ₂ CF ₂ CH (CH ₃) ₂ | CH ₂ SCH ₂ CH ₂ CH ₃ | OCH ₂ CH ₂ CH (CH ₃) ₂ |
| CH ₂ CH ₂ CH ₂ CF ₂ CH ₃ | CH ₂ SCH ₂ CH (CH ₃) ₂ | OCH ₂ -Si (CH ₃) ₃ |
| CH ₂ -cyclopropyl | CH ₂ SCH ₂ (C ₆ H ₅) |  |
| CH ₂ -cyclobutyl | CH ₂ SCH ₂ (3CF ₃ -C ₆ H ₄) | OCH ₂ (3CF ₃ -C ₆ H ₄) |
| CH ₂ -cyclopentyl | CH ₂ S (2Cl-C ₆ H ₄) | OCH ₂ (2Cl-C ₆ H ₄) |
| CH ₂ -cyclohexyl | CH ₂ S (4CH ₃ -C ₆ H ₄) | OCH ₂ CH (CH ₃) ₂ |
| cyclopropyl | CH ₂ S (2, 4Cl-C ₆ H ₃) | |

| | | |
|--|--|--|
| O (C ₆ H ₅) | NH (C ₆ H ₅) | CH ₂ (2Cl-C ₆ H ₄) |
| O (3CF ₃ -C ₆ H ₄) | NH (3CF ₃ -C ₆ H ₄) | CH ₂ (4Cl-C ₆ H ₄) |
| O (2Cl-C ₆ H ₄) | NH (2Cl-C ₆ H ₄) | CH ₂ (2, 4Cl-C ₆ H ₃) |
| O (4SCH ₃ -C ₆ H ₄) | NH (3CH ₃ -C ₆ H ₄) | CH ₂ (3SCH ₃ -C ₆ H ₄) |
| O (2, 4Cl-C ₆ H ₃) | NH (2, 4Cl-C ₆ H ₃) | CH ₂ (3OCH ₃ -C ₆ H ₄) |
| SCH ₂ CH ₂ CH ₃ | NH (2, 6Cl-C ₆ H ₃) | CH ₂ (3Cl-C ₆ H ₄) |
| SCH ₂ (CH ₂) ₂ CH ₃ | N (CH ₃) (3CF ₃ -C ₆ H ₄) | CH ₂ (2, 6F-C ₆ H ₃) |
| SCH ₂ (CH ₂) ₃ CH ₃ | N (CH ₃) CH ₂ CH ₂ CH ₃ | CH ₂ (2, 6Cl-C ₆ H ₃) |
| SCH ₂ (CH ₂) ₅ CH ₃ | N (CH ₂) ₄ | CH ₂ (3, 4F-C ₆ H ₃) |
| SCH ₂ (C ₆ H ₅) | N (CH ₂) ₅ | CH ₂ -Si (CH ₃) ₃ |
| SCH ₂ (3SCH ₃ -C ₆ H ₄) | N (CH ₂) ₆ | ON=C (CH ₃) ₂ |
| SCH ₂ (2OCH ₃ -C ₆ H ₄) | N (CH ₂ CH ₂ -OCH ₂ CH ₂) ₂ | ON=CH (C ₆ H ₅) |
| SCH ₂ (2Cl-C ₆ H ₄) | CH ₂ CO ₂ CH ₃ | ON=C (CH ₃) C ₆ H ₅ |
| SCH ₂ (2, 4-C ₆ H ₃) | CH ₂ CH ₂ CO ₂ CH ₂ CH ₃ | OCH ₂ (2, 6-Cl-C ₆ H ₃) |
| SCH ₂ (4CF ₃ -C ₆ H ₄) | CH ₂ CH ₂ CO ₂ CH ₃ | OCH ₂ (C=CH ₂) CH ₃ |
| S (CH ₃) ₃ | CH ₂ CH ₂ OCH ₂ CH ₃ | OCH ₂ -CH  |
| SCH ₂ CH (CH ₃) ₂ | CH ₂ CH ₂ SCH ₂ CH ₃ | 4F-C ₆ H ₄ |
| S (C ₆ H ₅) | CH ₂ CH ₂ -NHCH ₂ CH ₃ | 4Cl-C ₆ H ₄ |
| S (3CF ₃ -C ₆ H ₄) | CH ₂ CH ₂ N (CH ₃) CH ₂ CH ₃ | 4Br-C ₆ H ₄ |
| S (2Cl-C ₆ H ₄) | CH=CH (CH ₃) ₂ | 2-pyridyl |
| S (4OCH ₃ -C ₆ H ₄) | CH ₂ CH ₂ CH=CH ₂ | 2-furyl |
| S (2, 4Cl-C ₆ H ₃) | CH ₂ CH=CH-CH ₃ | 2-thiazolyl |
| S (2, 6F-C ₆ H ₃) | CH=CH-CH ₂ CH ₂ -Cl | 2-imidazolyl |
| 2 (3CH ₃ -C ₆ H ₄) | CH ₂ CH ₂ CH-ClCH ₂ -Cl | O-2 (3CF ₃ -C ₅ H ₃ N) |
| NHCH ₂ CH ₂ CH ₃ | C ₆ H ₅ | O-2Cl-6CF ₃ -C ₆ H ₃ |
| NHCH ₂ (CH ₂) ₂ CH ₃ | 3CF ₃ -C ₆ H ₄ | |
| NHCH ₂ (CH ₂) ₄ CH ₃ | 2Cl-C ₆ H ₄ | |
| NHCH ₂ (CH ₂) ₅ CH ₃ | 3CH ₃ -C ₆ H ₄ | |
| NHCH ₂ CH (CH ₃) ₂ | 3OCH ₃ -C ₆ H ₄ | |
| NHCH ₂ (C ₆ H ₅) | 2CF ₃ -C ₆ H ₄ | |
| NHCH ₂ (3CF ₃ -C ₆ H ₄) | 2, 4Cl-C ₆ H ₃ | |
| NHCH ₂ (2Cl-C ₆ H ₄) | 2, 6Cl-C ₆ H ₃ | |
| NHCH ₂ (4CH ₃ -C ₆ H ₄) | 2SCH ₃ -C ₆ H ₄ | |
| NHCH ₂ (2, 4Cl-C ₆ H ₃) | CH ₂ (C ₆ H ₅) | |
| NHCH ₂ (2, 6Cl-C ₆ H ₃) | CH ₂ (3CF ₃ -C ₆ H ₄) | |
| | | R ¹ =Br, R ² =C (O) NH ₂ |
| | | R ³ |
| | | (CH ₂) ₂ CH ₃ |
| | | (CH ₂) ₃ CH ₃ |
| | | (CH ₂) ₄ CH ₃ |
| | | (CH ₂) ₅ CH ₃ |
| | | (CH ₂) ₆ CH ₃ |
| | | (CH ₂) ₇ CH ₃ |

| | | |
|--|---|---|
| $(\text{CH}_2)_8\text{CH}_3$ | $\text{CH}_2\text{O} (4\text{CF}_3-\text{C}_6\text{H}_4)$ | $\text{OCH}_2\text{C} (\text{C}_6\text{H}_5)$ |
| $(\text{CH}_2)_9\text{CH}_3$ | $\text{CH}_2\text{O} (2\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{OCH}_2 (3\text{CF}_3-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2\text{CH} (\text{CH}_3)_2$ | $\text{CH}_2\text{O} (3\text{SCH}_3-\text{C}_6\text{H}_4)$ | $\text{OCH}_2 (2\text{Cl}-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2\text{CH}_2\text{CH} (\text{CH}_3)_2$ | $\text{CH}_2\text{O} (2\text{CH}_3-\text{C}_6\text{H}_4)$ | $\text{OCH}_2\text{CH} (\text{CH}_3)_2$ |
| $\text{CH}_2\text{CH}_2\text{CH}_2\text{CH} (\text{CH}_3)_2$ | $\text{CH}_2\text{O} (4\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{O} (\text{C}_6\text{H}_5)$ |
| $\text{CH}_2\text{CH}_2\text{CH} (\text{CH}_3)\text{CH}_2\text{CH}_2\text{CH}_3$ | $\text{CH}_2\text{O} (2, 4\text{Cl}-\text{C}_6\text{H}_3)$ | $\text{O} (3\text{CF}_3-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2\text{CH} (\text{CH}_3)\text{CH}_2\text{CH}_2\text{CH}_3$ | $\text{CH}_2\text{SCH}_2\text{CH}_3$ | $\text{O} (2\text{Cl}-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2\text{CH} (\text{CH}_2\text{CH}_3)\text{CH}_2\text{CH}_3$ | $\text{CH}_2\text{SCH}_2\text{CH}_2\text{CH}_3$ | $\text{O} (4\text{SCH}_3-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_3$ | $\text{CH}_2\text{SCH}_2\text{CH} (\text{CH}_3)_2$ | $\text{O} (2, 4\text{Cl}-\text{C}_6\text{H}_3)$ |
| $\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{OCH}_3$ | $\text{CH}_2\text{SCH}_2 (\text{C}_6\text{H}_5)$ | $\text{SCH}_2\text{CH}_2\text{CH}_3$ |
| $\text{CH}_2\text{CH}_2\text{CH}_2-\text{S}-\text{CH}_2\text{CH}_3$ | $\text{CH}_2\text{SCH}_2 (3\text{CF}_3-\text{C}_6\text{H}_4)$ | $\text{SCH}_2 (\text{CH}_2)_2\text{CH}_3$ |
| $\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{SCH}_3$ | $\text{CH}_2\text{S} (2\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{SCH}_2 (\text{CH}_2)_3\text{CH}_3$ |
| $\text{CH}_2\text{CH}_2\text{CH}_2\text{NHCH}_2\text{CH}_3$ | $\text{CH}_2\text{S} (4\text{CH}_3-\text{C}_6\text{H}_4)$ | $\text{SCH}_2 (\text{CH}_2)_5\text{CH}_3$ |
| $\text{CH}_2\text{CF}_2\text{CH} (\text{CH}_3)_2$ | $\text{CH}_2\text{S} (2, 4\text{Cl}-\text{C}_6\text{H}_3)$ | $\text{SCH}_2 (\text{C}_6\text{H}_5)$ |
| $\text{CH}_2\text{CH}_2\text{CH}_2\text{CF}_2\text{CH}_3$ | $\text{CH}_2\text{S} (3\text{SCH}_3-\text{C}_6\text{H}_4)$ | $\text{SCH}_2 (3\text{SCH}_3-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2\text{-cyclopropyl}$ | $\text{CH}_2\text{S} (2, 6\text{Cl}-\text{C}_6\text{H}_3)$ | $\text{SCH}_2 (2\text{OCH}_3-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2\text{-cyclobutyl}$ | $\text{CH}_2\text{S} (\text{C}_6\text{H}_5)$ | $\text{SCH}_2 (2\text{Cl}-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2\text{-cyclopentyl}$ | $\text{CH}_2\text{S} (3\text{CF}_3-\text{C}_6\text{H}_4)$ | $\text{SCH}_2 (2, 4-\text{C}_6\text{H}_3)$ |
| $\text{CH}_2\text{-cyclohexyl}$ | $\text{CH}_2\text{S} (2\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{SCH}_2 (4\text{CF}_3-\text{C}_6\text{H}_4)$ |
| cyclopropyl | $\text{CH}_2\text{S} (4\text{CH}_3-\text{C}_6\text{H}_4)$ | $\text{S} (\text{CH}_3)_3$ |
| cyclobutyl | $\text{CH}_2\text{S} (2, 6\text{Cl}-\text{C}_6\text{H}_3)$ | $\text{SCH}_2\text{CH} (\text{CH}_3)_2$ |
| cyclopentyl | $\text{CH}_2\text{S} (2, 4\text{Cl}-\text{C}_6\text{H}_3)$ | $\text{S} (\text{C}_6\text{H}_5)$ |
| cyclohexyl | $\text{CH}_2\text{NHCH}_2\text{CH}_3$ | $\text{S} (3\text{CF}_3-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2\text{OCH}_2\text{CH}_3$ | $\text{CH}_2\text{NHCH}_2\text{CH}_2\text{CH}_3$ | $\text{S} (2\text{Cl}-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2\text{OCH}_2\text{CH}_2\text{CH}_3$ | $\text{CH}_2\text{NHCH}_2\text{C} (\text{C}_6\text{H}_5)$ | $\text{S} (4\text{OCH}_3-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2\text{OCH}_2\text{CH} (\text{CH}_3)_2$ | $\text{CH}_2\text{NHCH}_2\text{CH} (\text{CH}_3)_2$ | $\text{S} (2, 4\text{Cl}-\text{C}_6\text{H}_3)$ |
| $\text{CH}_2\text{OCH}_2 (\text{C}_6\text{H}_5)$ | $\text{CH}_2\text{NHCH}_2 (3\text{CF}_3-\text{C}_6\text{H}_4)$ | $\text{S} (2, 6\text{F}-\text{C}_6\text{H}_3)$ |
| $\text{CH}_2\text{OCH}_2 (3\text{CF}_3-\text{C}_6\text{H}_4)$ | $\text{CH}_2\text{NHCH}_2 (2\text{Cl}-\text{C}_6\text{H}_4)$ | $2 (3\text{CH}_3-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2\text{OCH}_2 (2\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{CH}_2\text{NH} (\text{C}_6\text{H}_5)$ | $\text{NHCH}_2\text{CH}_2\text{CH}_3$ |
| $\text{CH}_2\text{OCH}_2 (3\text{SCH}_3-\text{C}_6\text{H}_4)$ | $\text{CH}_2\text{NH} (2\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{NHCH}_2 (\text{CH}_2)_2\text{CH}_3$ |
| $\text{CH}_2\text{OCH}_2 (4\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{CH}_2\text{N} (\text{CH}_3) (2\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{NHCH}_2 (\text{CH}_2)_4\text{CH}_3$ |
| $\text{CH}_2\text{OCH}_2 (2, 4\text{F}-\text{C}_6\text{H}_3)$ | $\text{OCH}_2\text{CH}_2\text{CH}_3$ | $\text{NHCH}_2 (\text{CH}_2)_5\text{CH}_3$ |
| $\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_2\text{CH}_3$ | $\text{OCH}_2 (\text{CH}_2)_2\text{CH}_3$ | $\text{NHCH}_2\text{CH} (\text{CH}_3)_2$ |
| $\text{CH}_2\text{O} (\text{C}_6\text{H}_5)$ | $\text{OCH}_2 (\text{CH}_2)_3\text{CH}_3$ | $\text{NHCH}_2 (\text{C}_6\text{H}_5)$ |
| $\text{CH}_2\text{O} (3\text{CF}_3-\text{C}_6\text{H}_4)$ | $\text{OCH}_2 (\text{CH}_2)_5\text{CH}_3$ | $\text{NHCH}_2 (3\text{CF}_3-\text{C}_6\text{H}_4)$ |

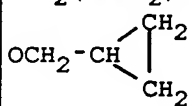
| | | |
|--|--|---|
| NHCH ₂ (2Cl-C ₆ H ₄) | 2, 6Cl-C ₆ H ₃ | (CH ₂) ₄ CH ₃ |
| NHCH ₂ (4CH ₃ -C ₆ H ₄) | 2SCH ₃ -C ₆ H ₄ | (CH ₂) ₅ CH ₃ |
| NHCH ₂ (2, 4Cl-C ₆ H ₃) | CH ₂ (C ₆ H ₅) | (CH ₂) ₆ CH ₃ |
| NHCH ₂ (2, 6Cl-C ₆ H ₃) | CH ₂ (3CF ₃ -C ₆ H ₄) | (CH ₂) ₇ CH ₃ |
| NH (C ₆ H ₅) | CH ₂ (2Cl-C ₆ H ₄) | (CH ₂) ₈ CH ₃ |
| NH (3CF ₃ -C ₆ H ₄) | CH ₂ (4Cl-C ₆ H ₄) | (CH ₂) ₉ CH ₃ |
| NH (2Cl-C ₆ H ₄) | CH ₂ (2, 4Cl-C ₆ H ₃) | CH ₂ CH (CH ₃) ₂ |
| NH (3CH ₃ -C ₆ H ₄) | CH ₂ (3SCH ₃ -C ₆ H ₄) | CH ₂ CH ₂ CH (CH ₃) ₂ |
| NH (2, 4Cl-C ₆ H ₃) | CH ₂ (3OCH ₃ -C ₆ H ₄) | CH ₂ CH ₂ CH ₂ CH (CH ₃) ₂ |
| NH (2, 6Cl-C ₆ H ₃) | CH ₂ (3Cl-C ₆ H ₄) | CH ₂ CH ₂ CH (CH ₃) CH ₂ CH ₂ CH ₃ |
| N (CH ₃) (3CF ₃ -C ₆ H ₄) | CH ₂ (2, 6F-C ₆ H ₃) | CH ₂ CH (CH ₃) CH ₂ CH ₂ CH ₃ |
| N (CH ₃) CH ₂ CH ₂ CH ₃ | CH ₂ (2, 6Cl-C ₆ H ₃) | CH ₂ CH (CH ₂ CH ₃) CH ₂ CH ₃ |
| N (CH ₂) ₄ | CH ₂ (3, 4F-C ₆ H ₃) | CH ₂ CH ₂ CH ₂ OCH ₂ CH ₃ |
| N (CH ₂) ₅ | CH ₂ -Si (CH ₃) ₃ | CH ₂ CH ₂ CH ₂ CH ₂ OCH ₃ |
| N (CH ₂) ₆ | ON=C (CH ₃) ₂ | CH ₂ CH ₂ CH ₂ -S-CH ₂ CH ₃ |
| N (CH ₂ CH ₂ -OCH ₂ CH ₂) ₂ | ON=CH (C ₆ H ₅) | CH ₂ CH ₂ CH ₂ CH ₂ SCH ₃ |
| CH ₂ CO ₂ CH ₃ | ON=C (CH ₃) C ₆ H ₅ | CH ₂ CH ₂ CH ₂ NHCH ₂ CH ₃ |
| CH ₂ CH ₂ CO ₂ CH ₂ CH ₃ | OCH ₂ (2, 6-Cl-C ₆ H ₃) | CH ₂ CF ₂ CH (CH ₃) ₂ |
| CH ₂ CH ₂ CO ₂ CH ₃ | OCH ₂ (C=CH ₂) CH ₃ | CH ₂ CH ₂ CH ₂ CF ₂ CH ₃ |
| CH ₂ CH ₂ OCH ₂ CH ₃ | OCH ₂ -CH  | CH ₂ -cyclopropyl |
| CH ₂ CH ₂ SCH ₂ CH ₃ | | CH ₂ -cyclobutyl |
| CH ₂ CH ₂ -NHCH ₂ CH ₃ | 4F-C ₆ H ₄ | CH ₂ -cyclopentyl |
| CH ₂ CH ₂ N (CH ₃) CH ₂ CH ₃ | 4Cl-C ₆ H ₄ | CH ₂ -cyclohexyl |
| CH=CH (CH ₃) ₂ | 4Br-C ₆ H ₄ | cyclopropyl |
| CH ₂ CH ₂ CH=CH ₂ | 2-pyridyl | cyclobutyl |
| CH ₂ CH=CH-CH ₃ | 2-furyl | cyclopentyl |
| CH=CH-CH ₂ CH ₂ -Cl | 2-thiazolyl | cyclohexyl |
| CH ₂ CH ₂ CH-ClCH ₂ -Cl | 2-imidazolyl | CH ₂ OCH ₂ CH ₃ |
| C ₆ H ₅ | O-2 (3CF ₃ -C ₅ H ₃ N) | CH ₂ OCH ₂ CH ₂ CH ₃ |
| 3CF ₃ -C ₆ H ₄ | O-2Cl-6CF ₃ -C ₆ H ₃ | CH ₂ OCH ₂ CH (CH ₃) ₂ |
| 2Cl-C ₆ H ₄ | | CH ₂ OCH ₂ (C ₆ H ₅) |
| 3CH ₃ -C ₆ H ₄ | R ¹ =I, R ² =C (O) NH ₂ | CH ₂ OCH ₂ (3CF ₃ -C ₆ H ₄) |
| 3OCH ₃ -C ₆ H ₄ | R ³ | CH ₂ OCH ₂ (2Cl-C ₆ H ₄) |
| 2CF ₃ -C ₆ H ₄ | (CH ₂) ₂ CH ₃ | CH ₂ OCH ₂ (3SCH ₃ -C ₆ H ₄) |
| 2, 4Cl-C ₆ H ₃ | (CH ₂) ₃ CH ₃ | CH ₂ OCH ₂ (4Cl-C ₆ H ₄) |

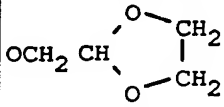
| | | |
|--|--|---|
| CH ₂ OCH ₂ (2, 4F-C ₆ H ₃) | OCH ₂ CH ₂ CH ₃ | NHCH ₂ (CH ₂) ₅ CH ₃ |
| CH ₂ CH ₂ OCH ₂ CH ₂ CH ₃ | OCH ₂ (CH ₂) ₂ CH ₃ | NHCH ₂ CH (CH ₃) ₂ |
| CH ₂ O (C ₆ H ₅) | OCH ₂ (CH ₂) ₃ CH ₃ | NHCH ₂ (C ₆ H ₅) |
| CH ₂ O (3CF ₃ -C ₆ H ₄) | OCH ₂ (CH ₂) ₅ CH ₃ | NHCH ₂ (3CF ₃ -C ₆ H ₄) |
| CH ₂ O (4CF ₃ -C ₆ H ₄) | OCH ₂ C (C ₆ H ₅) | NHCH ₂ (2Cl-C ₆ H ₄) |
| CH ₂ O (2Cl-C ₆ H ₄) | OCH ₂ (3CF ₃ -C ₆ H ₄) | NHCH ₂ (4CH ₃ -C ₆ H ₄) |
| CH ₂ O (3SCH ₃ -C ₆ H ₄) | OCH ₂ (2Cl-C ₆ H ₄) | NHCH ₂ (2, 4Cl-C ₆ H ₃) |
| CH ₂ O (2CH ₃ -C ₆ H ₄) | OCH ₂ CH (CH ₃) ₂ | NHCH ₂ (2, 6Cl-C ₆ H ₃) |
| CH ₂ O (4Cl-C ₆ H ₄) | O (C ₆ H ₅) | NH (C ₆ H ₅) |
| CH ₂ O (2, 4Cl-C ₆ H ₃) | O (3CF ₃ -C ₆ H ₄) | NH (3CF ₃ -C ₆ H ₄) |
| CH ₂ SCH ₂ CH ₃ | O (2Cl-C ₆ H ₄) | NH (2Cl-C ₆ H ₄) |
| CH ₂ SCH ₂ CH ₂ CH ₃ | O (4SCH ₃ -C ₆ H ₄) | NH (3CH ₃ -C ₆ H ₄) |
| CH ₂ SCH ₂ CH (CH ₃) ₂ | O (2, 4Cl-C ₆ H ₃) | NH (2, 4Cl-C ₆ H ₃) |
| CH ₂ SCH ₂ (C ₆ H ₅) | SCH ₂ CH ₂ CH ₃ | NH (2, 6Cl-C ₆ H ₃) |
| CH ₂ SCH ₂ (3CF ₃ -C ₆ H ₄) | SCH ₂ (CH ₂) ₂ CH ₃ | N (CH ₃) (3CF ₃ -C ₆ H ₄) |
| CH ₂ S (2Cl-C ₆ H ₄) | SCH ₂ (CH ₂) ₃ CH ₃ | N (CH ₃)CH ₂ CH ₂ CH ₃ |
| CH ₂ S (4CH ₃ -C ₆ H ₄) | SCH ₂ (CH ₂) ₅ CH ₃ | N (CH ₂) ₄ |
| CH ₂ S (2, 4Cl-C ₆ H ₃) | SCH ₂ (C ₆ H ₅) | N (CH ₂) ₅ |
| CH ₂ S (3SCH ₃ -C ₆ H ₄) | SCH ₂ (3SCH ₃ -C ₆ H ₄) | N (CH ₂) ₆ |
| CH ₂ S (2, 6Cl-C ₆ H ₃) | SCH ₂ (2OCH ₃ -C ₆ H ₄) | N (CH ₂ CH ₂ -OCH ₂ CH ₂) ₂ |
| CH ₂ S (C ₆ H ₅) | SCH ₂ (2Cl-C ₆ H ₄) | CH ₂ CO ₂ CH ₃ |
| CH ₂ S (3CF ₃ -C ₆ H ₄) | SCH ₂ (2, 4-C ₆ H ₃) | CH ₂ CH ₂ CO ₂ CH ₂ CH ₃ |
| CH ₂ S (2Cl-C ₆ H ₄) | SCH ₂ (4CF ₃ -C ₆ H ₄) | CH ₂ CH ₂ CO ₂ CH ₃ |
| CH ₂ S (4CH ₃ -C ₆ H ₄) | S (CH ₃) ₃ | CH ₂ CH ₂ OCH ₂ CH ₃ |
| CH ₂ S (2, 6Cl-C ₆ H ₃) | SCH ₂ CH (CH ₃) ₂ | CH ₂ CH ₂ SCH ₂ CH ₃ |
| CH ₂ S (2, 4Cl-C ₆ H ₃) | S (C ₆ H ₅) | CH ₂ CH ₂ -NHCH ₂ CH ₃ |
| CH ₂ NHCH ₂ CH ₃ | S (3CF ₃ -C ₆ H ₄) | CH ₂ CH ₂ N (CH ₃)CH ₂ CH ₃ |
| CH ₂ NHCH ₂ CH ₂ CH ₃ | S (2Cl-C ₆ H ₄) | CH=CH (CH ₃) ₂ |
| CH ₂ NHCH ₂ C (C ₆ H ₅) | S (4OCH ₃ -C ₆ H ₄) | CH ₂ CH ₂ CH=CH ₂ |
| CH ₂ NHCH ₂ CH (CH ₃) ₂ | S (2, 4Cl-C ₆ H ₃) | CH ₂ CH=CH-CH ₃ |
| CH ₂ NHCH ₂ (3CF ₃ -C ₆ H ₄) | S (2, 6F-C ₆ H ₃) | CH=CH-CH ₂ CH ₂ -Cl |
| CH ₂ NHCH ₂ (2Cl-C ₆ H ₄) | 2 (3CH ₃ -C ₆ H ₄) | CH ₂ CH ₂ CH-ClCH ₂ -Cl |
| CH ₂ NH (C ₆ H ₅) | NHCH ₂ CH ₂ CH ₃ | C ₆ H ₅ |
| CH ₂ NH (2Cl-C ₆ H ₄) | NHCH ₂ (CH ₂) ₂ CH ₃ | 3CF ₃ -C ₆ H ₄ |
| CH ₂ N (CH ₃) (2Cl-C ₆ H ₄) | NHCH ₂ (CH ₂) ₄ CH ₃ | 2Cl-C ₆ H ₄ |

| | | |
|---|---|--|
| 3CH ₃ -C ₆ H ₄ | R ¹ =OCH ₃ , R ² =C(O)NH ₂ | CH ₂ OCH ₂ (3CF ₃ -C ₆ H ₄) |
| 3OCH ₃ -C ₆ H ₄ | R ³ | CH ₂ OCH ₂ (2Cl-C ₆ H ₄) |
| 2CF ₃ -C ₆ H ₄ | (CH ₂) ₂ CH ₃ | CH ₂ OCH ₂ (3SCH ₃ -C ₆ H ₄) |
| 2,4Cl-C ₆ H ₃ | (CH ₂) ₃ CH ₃ | CH ₂ OCH ₂ (4Cl-C ₆ H ₄) |
| 2,6Cl-C ₆ H ₃ | (CH ₂) ₄ CH ₃ | CH ₂ OCH ₂ (2,4F-C ₆ H ₃) |
| 2SCH ₃ -C ₆ H ₄ | (CH ₂) ₅ CH ₃ | CH ₂ CH ₂ OCH ₂ CH ₂ CH ₃ |
| CH ₂ (C ₆ H ₅) | (CH ₂) ₆ CH ₃ | CH ₂ O(C ₆ H ₅) |
| CH ₂ (3CF ₃ -C ₆ H ₄) | (CH ₂) ₇ CH ₃ | CH ₂ O(3CF ₃ -C ₆ H ₄) |
| CH ₂ (2Cl-C ₆ H ₄) | (CH ₂) ₈ CH ₃ | CH ₂ O(4CF ₃ -C ₆ H ₄) |
| CH ₂ (4Cl-C ₆ H ₄) | (CH ₂) ₉ CH ₃ | CH ₂ O(2Cl-C ₆ H ₄) |
| CH ₂ (2,4Cl-C ₆ H ₃) | CH ₂ CH(CH ₃) ₂ | CH ₂ O(3SCH ₃ -C ₆ H ₄) |
| CH ₂ (3SCH ₃ -C ₆ H ₄) | CH ₂ CH ₂ CH(CH ₃) ₂ | CH ₂ O(2CH ₃ -C ₆ H ₄) |
| CH ₂ (3OCH ₃ -C ₆ H ₄) | CH ₂ CH ₂ CH ₂ CH(CH ₃) ₂ | CH ₂ O(4Cl-C ₆ H ₄) |
| CH ₂ (3Cl-C ₆ H ₄) | CH ₂ CH ₂ CH(CH ₃)CH ₂ CH ₂ CH ₃ | CH ₂ O(2,4Cl-C ₆ H ₃) |
| CH ₂ (2,6F-C ₆ H ₃) | CH ₂ CH(CH ₃)CH ₂ CH ₂ CH ₃ | CH ₂ SCH ₂ CH ₃ |
| CH ₂ (2,6Cl-C ₆ H ₃) | CH ₂ CH(CH ₂ CH ₃)CH ₂ CH ₃ | CH ₂ SCH ₂ CH ₂ CH ₃ |
| CH ₂ (3,4F-C ₆ H ₃) | CH ₂ CH ₂ CH ₂ OCH ₂ CH ₃ | CH ₂ SCH ₂ CH(CH ₃) ₂ |
| CH ₂ -Si(CH ₃) ₃ | CH ₂ CH ₂ CH ₂ CH ₂ OCH ₃ | CH ₂ SCH ₂ (C ₆ H ₅) |
| ON=C(CH ₃) ₂ | CH ₂ CH ₂ CH ₂ -S-CH ₂ CH ₃ | CH ₂ SCH ₂ (3CF ₃ -C ₆ H ₄) |
| ON=CH(C ₆ H ₅) | CH ₂ CH ₂ CH ₂ CH ₂ SCH ₃ | CH ₂ S(2Cl-C ₆ H ₄) |
| ON=C(CH ₃)C ₆ H ₅ | CH ₂ CH ₂ CH ₂ NHCH ₂ CH ₃ | CH ₂ S(4CH ₃ -C ₆ H ₄) |
| OCH ₂ (2,6-Cl-C ₆ H ₃) | CH ₂ CF ₂ CH(CH ₃) ₂ | CH ₂ S(2,4Cl-C ₆ H ₃) |
| OCH ₂ (C=CH ₂)CH ₃ | CH ₂ CH ₂ CH ₂ CF ₂ CH ₃ | CH ₂ S(3SCH ₃ -C ₆ H ₄) |
| OCH ₂ -CH ₂ CH ₂ | CH ₂ -cyclopropyl | CH ₂ S(2,6Cl-C ₆ H ₃) |
| 4F-C ₆ H ₄ | CH ₂ -cyclobutyl | CH ₂ S(C ₆ H ₅) |
| 4Cl-C ₆ H ₄ | CH ₂ -cyclopentyl | CH ₂ S(3CF ₃ -C ₆ H ₄) |
| 4Br-C ₆ H ₄ | CH ₂ -cyclohexyl | CH ₂ S(2Cl-C ₆ H ₄) |
| 2-pyridyl | cyclopropyl | CH ₂ S(4CH ₃ -C ₆ H ₄) |
| 2-furyl | cyclobutyl | CH ₂ S(2,6Cl-C ₆ H ₃) |
| 2-thiazolyl | cyclopentyl | CH ₂ S(2,4Cl-C ₆ H ₃) |
| 2-imidazolyl | cyclohexyl | CH ₂ NHCH ₂ CH ₃ |
| O-2(3CF ₃ -C ₅ H ₃ N) | CH ₂ OCH ₂ CH ₃ | CH ₂ NHCH ₂ CH ₂ CH ₃ |
| O-2Cl-6CF ₃ -C ₆ H ₃ | CH ₂ OCH ₂ CH ₂ CH ₃ | CH ₂ NHCH ₂ C(C ₆ H ₅) |
| | CH ₂ OCH ₂ CH(CH ₃) ₂ | CH ₂ NHCH ₂ CH(CH ₃) ₂ |
| | CH ₂ OCH ₂ (C ₆ H ₅) | CH ₂ NHCH ₂ (3CF ₃ -C ₆ H ₄) |

| | | |
|---|---|--|
| $\text{CH}_2\text{NHCH}_2(2\text{Cl}-\text{C}_6\text{H}_4)$ | $2(3\text{CH}_3-\text{C}_6\text{H}_4)$ | $\text{CH}_2\text{CH}_2\text{CH}-\text{ClCH}_2-\text{Cl}$ |
| $\text{CH}_2\text{NH}(\text{C}_6\text{H}_5)$ | $\text{NHCH}_2\text{CH}_2\text{CH}_3$ | C_6H_5 |
| $\text{CH}_2\text{NH}(2\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{NHCH}_2(\text{CH}_2)_2\text{CH}_3$ | $3\text{CF}_3-\text{C}_6\text{H}_4$ |
| $\text{CH}_2\text{N}(\text{CH}_3)(2\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{NHCH}_2(\text{CH}_2)_4\text{CH}_3$ | $2\text{Cl}-\text{C}_6\text{H}_4$ |
| $\text{OCH}_2\text{CH}_2\text{CH}_3$ | $\text{NHCH}_2(\text{CH}_2)_5\text{CH}_3$ | $3\text{CH}_3-\text{C}_6\text{H}_4$ |
| $\text{OCH}_2(\text{CH}_2)_2\text{CH}_3$ | $\text{NHCH}_2\text{CH}(\text{CH}_3)_2$ | $3\text{OCH}_3-\text{C}_6\text{H}_4$ |
| $\text{OCH}_2(\text{CH}_2)_3\text{CH}_3$ | $\text{NHCH}_2(\text{C}_6\text{H}_5)$ | $2\text{CF}_3-\text{C}_6\text{H}_4$ |
| $\text{OCH}_2(\text{CH}_2)_5\text{CH}_3$ | $\text{NHCH}_2(3\text{CF}_3-\text{C}_6\text{H}_4)$ | $2,4\text{Cl}-\text{C}_6\text{H}_3$ |
| $\text{OCH}_2\text{C}(\text{C}_6\text{H}_5)$ | $\text{NHCH}_2(2\text{Cl}-\text{C}_6\text{H}_4)$ | $2,6\text{Cl}-\text{C}_6\text{H}_3$ |
| $\text{OCH}_2(3\text{CF}_3-\text{C}_6\text{H}_4)$ | $\text{NHCH}_2(4\text{CH}_3-\text{C}_6\text{H}_4)$ | $2\text{SCH}_3-\text{C}_6\text{H}_4$ |
| $\text{OCH}_2(2\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{NHCH}_2(2,4\text{Cl}-\text{C}_6\text{H}_3)$ | $\text{CH}_2(\text{C}_6\text{H}_5)$ |
| $\text{OCH}_2\text{CH}(\text{CH}_3)_2$ | $\text{NHCH}_2(2,6\text{Cl}-\text{C}_6\text{H}_3)$ | $\text{CH}_2(3\text{CF}_3-\text{C}_6\text{H}_4)$ |
| $\text{O}(\text{C}_6\text{H}_5)$ | $\text{NH}(\text{C}_6\text{H}_5)$ | $\text{CH}_2(2\text{Cl}-\text{C}_6\text{H}_4)$ |
| $\text{O}(3\text{CF}_3-\text{C}_6\text{H}_4)$ | $\text{NH}(3\text{CF}_3-\text{C}_6\text{H}_4)$ | $\text{CH}_2(4\text{Cl}-\text{C}_6\text{H}_4)$ |
| $\text{O}(2\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{NH}(2\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{CH}_2(2,4\text{Cl}-\text{C}_6\text{H}_3)$ |
| $\text{O}(4\text{SCH}_3-\text{C}_6\text{H}_4)$ | $\text{NH}(3\text{CH}_3-\text{C}_6\text{H}_4)$ | $\text{CH}_2(3\text{SCH}_3-\text{C}_6\text{H}_4)$ |
| $\text{O}(2,4\text{Cl}-\text{C}_6\text{H}_3)$ | $\text{NH}(2,4\text{Cl}-\text{C}_6\text{H}_3)$ | $\text{CH}_2(3\text{OCH}_3-\text{C}_6\text{H}_4)$ |
| $\text{SCH}_2\text{CH}_2\text{CH}_3$ | $\text{NH}(2,6\text{Cl}-\text{C}_6\text{H}_3)$ | $\text{CH}_2(3\text{Cl}-\text{C}_6\text{H}_4)$ |
| $\text{SCH}_2(\text{CH}_2)_2\text{CH}_3$ | $\text{N}(\text{CH}_3)(3\text{CF}_3-\text{C}_6\text{H}_4)$ | $\text{CH}_2(2,6\text{F}-\text{C}_6\text{H}_3)$ |
| $\text{SCH}_2(\text{CH}_2)_3\text{CH}_3$ | $\text{N}(\text{CH}_3)\text{CH}_2\text{CH}_2\text{CH}_3$ | $\text{CH}_2(2,6\text{Cl}-\text{C}_6\text{H}_3)$ |
| $\text{SCH}_2(\text{CH}_2)_5\text{CH}_3$ | $\text{N}(\text{CH}_2)_4$ | $\text{CH}_2(3,4\text{F}-\text{C}_6\text{H}_3)$ |
| $\text{SCH}_2(\text{C}_6\text{H}_5)$ | $\text{N}(\text{CH}_2)_5$ | $\text{CH}_2-\text{Si}(\text{CH}_3)_3$ |
| $\text{SCH}_2(3\text{SCH}_3-\text{C}_6\text{H}_4)$ | $\text{N}(\text{CH}_2)_6$ | $\text{ON}=\text{C}(\text{CH}_3)_2$ |
| $\text{SCH}_2(2\text{OCH}_3-\text{C}_6\text{H}_4)$ | $\text{N}(\text{CH}_2\text{CH}_2-\text{OCH}_2\text{CH}_2)_2$ | $\text{ON}=\text{CH}(\text{C}_6\text{H}_5)$ |
| $\text{SCH}_2(2\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{CH}_2\text{CO}_2\text{CH}_3$ | $\text{ON}=\text{C}(\text{CH}_3)\text{C}_6\text{H}_5$ |
| $\text{SCH}_2(2,4-\text{C}_6\text{H}_3)$ | $\text{CH}_2\text{CH}_2\text{CO}_2\text{CH}_2\text{CH}_3$ | $\text{OCH}_2(2,6-\text{Cl}-\text{C}_6\text{H}_3)$ |
| $\text{SCH}_2(4\text{CF}_3-\text{C}_6\text{H}_4)$ | $\text{CH}_2\text{CH}_2\text{CO}_2\text{CH}_3$ | $\text{OCH}_2(\text{C}=\text{CH}_2)\text{CH}_3$ |
| $\text{S}(\text{CH}_3)_3$ | $\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_3$ | $\text{OCH}_2-\text{CH} \begin{array}{l} \nearrow \text{CH}_2 \\ \searrow \text{CH}_2 \end{array}$ |
| $\text{SCH}_2\text{CH}(\text{CH}_3)_2$ | $\text{CH}_2\text{CH}_2\text{SCH}_2\text{CH}_3$ | $4\text{F}-\text{C}_6\text{H}_4$ |
| $\text{S}(\text{C}_6\text{H}_5)$ | $\text{CH}_2\text{CH}_2-\text{NHCH}_2\text{CH}_3$ | $4\text{Cl}-\text{C}_6\text{H}_4$ |
| $\text{S}(3\text{CF}_3-\text{C}_6\text{H}_4)$ | $\text{CH}_2\text{CH}_2\text{N}(\text{CH}_3)\text{CH}_2\text{CH}_3$ | $4\text{Br}-\text{C}_6\text{H}_4$ |
| $\text{S}(2\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{CH}=\text{CH}(\text{CH}_3)_2$ | 2-pyridyl |
| $\text{S}(4\text{OCH}_3-\text{C}_6\text{H}_4)$ | $\text{CH}_2\text{CH}_2\text{CH}=\text{CH}_2$ | 2-furyl |
| $\text{S}(2,4\text{Cl}-\text{C}_6\text{H}_3)$ | $\text{CH}_2\text{CH}=\text{CH}-\text{CH}_3$ | 2-thiazolyl |
| $\text{S}(2,6\text{F}-\text{C}_6\text{H}_3)$ | $\text{CH}=\text{CH}-\text{CH}_2\text{CH}_2-\text{Cl}$ | |


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|--|--|--|
| 2-imidazolyl | CH ₂ OCH ₂ CH ₃ | CH ₂ NHCH ₂ CH ₂ CH ₃ |
| O-2 (3CF ₃ -C ₅ H ₃ N) | CH ₂ OCH ₂ CH ₂ CH ₃ | CH ₂ NHCH ₂ C (C ₆ H ₅) |
| O-2Cl-6CF ₃ -C ₆ H ₃ | CH ₂ OCH ₂ CH (CH ₃) ₂ | CH ₂ NHCH ₂ CH (CH ₃) ₂ |
| | CH ₂ OCH ₂ (C ₆ H ₅) | CH ₂ NHCH ₂ (3CF ₃ -C ₆ H ₄) |
| R ¹ =OCF ₂ H, R ² =C (O)NH ₂ | CH ₂ OCH ₂ (3CF ₃ -C ₆ H ₄) | CH ₂ NHCH ₂ (2Cl-C ₆ H ₄) |
| R ³ | CH ₂ OCH ₂ (2Cl-C ₆ H ₄) | CH ₂ NH (C ₆ H ₅) |
| (CH ₂) ₂ CH ₃ | CH ₂ OCH ₂ (3SCH ₃ -C ₆ H ₄) | CH ₂ NH (2Cl-C ₆ H ₄) |
| (CH ₂) ₃ CH ₃ | CH ₂ OCH ₂ (4Cl-C ₆ H ₄) | CH ₂ N (CH ₃) (2Cl-C ₆ H ₄) |
| (CH ₂) ₄ CH ₃ | CH ₂ OCH ₂ (2, 4F-C ₆ H ₃) | OCH ₂ CH ₂ CH ₃ |
| (CH ₂) ₅ CH ₃ | CH ₂ CH ₂ OCH ₂ CH ₂ CH ₃ | OCH ₂ (CH ₂) ₂ CH ₃ |
| (CH ₂) ₆ CH ₃ | CH ₂ O (C ₆ H ₅) | OCH ₂ (CH ₂) ₃ CH ₃ |
| (CH ₂) ₇ CH ₃ | CH ₂ O (3CF ₃ -C ₆ H ₄) | OCH ₂ (CH ₂) ₅ CH ₃ |
| (CH ₂) ₈ CH ₃ | CH ₂ O (4CF ₃ -C ₆ H ₄) | OCH ₂ C (C ₆ H ₅) |
| (CH ₂) ₉ CH ₃ | CH ₂ O (2Cl-C ₆ H ₄) | OCH ₂ (3CF ₃ -C ₆ H ₄) |
| CH ₂ CH (CH ₃) ₂ | CH ₂ O (3SCH ₃ -C ₆ H ₄) | OCH ₂ (2Cl-C ₆ H ₄) |
| CH ₂ CH ₂ CH (CH ₃) ₂ | CH ₂ O (2CH ₃ -C ₆ H ₄) | OCH ₂ CH (CH ₃) ₂ |
| CH ₂ CH ₂ CH ₂ CH (CH ₃) ₂ | CH ₂ O (4Cl-C ₆ H ₄) | O (C ₆ H ₅) |
| CH ₂ CH ₂ CH (CH ₃)CH ₂ CH ₂ CH ₃ | CH ₂ O (2, 4Cl-C ₆ H ₃) | O (3CF ₃ -C ₆ H ₄) |
| CH ₂ CH (CH ₃)CH ₂ CH ₂ CH ₃ | CH ₂ SCH ₂ CH ₃ | O (2Cl-C ₆ H ₄) |
| CH ₂ CH (CH ₂ CH ₃)CH ₂ CH ₃ | CH ₂ SCH ₂ CH ₂ CH ₃ | O (4SCH ₃ -C ₆ H ₄) |
| CH ₂ CH ₂ CH ₂ OCH ₂ CH ₃ | CH ₂ SCH ₂ CH (CH ₃) ₂ | O (2, 4Cl-C ₆ H ₃) |
| CH ₂ CH ₂ CH ₂ CH ₂ OCH ₃ | CH ₂ SCH ₂ (C ₆ H ₅) | SCH ₂ CH ₂ CH ₃ |
| CH ₂ CH ₂ CH ₂ -S-CH ₂ CH ₃ | CH ₂ SCH ₂ (3CF ₃ -C ₆ H ₄) | SCH ₂ (CH ₂) ₂ CH ₃ |
| CH ₂ CH ₂ CH ₂ CH ₂ SCH ₃ | CH ₂ S (2Cl-C ₆ H ₄) | SCH ₂ (CH ₂) ₃ CH ₃ |
| CH ₂ CH ₂ CH ₂ NHCH ₂ CH ₃ | CH ₂ S (4CH ₃ -C ₆ H ₄) | SCH ₂ (CH ₂) ₅ CH ₃ |
| CH ₂ CF ₂ CH (CH ₃) ₂ | CH ₂ S (2, 4Cl-C ₆ H ₃) | SCH ₂ (C ₆ H ₅) |
| CH ₂ CH ₂ CH ₂ CF ₂ CH ₃ | CH ₂ S (3SCH ₃ -C ₆ H ₄) | SCH ₂ (3SCH ₃ -C ₆ H ₄) |
| CH ₂ -cyclopropyl | CH ₂ S (2, 6Cl-C ₆ H ₃) | SCH ₂ (2OCH ₃ -C ₆ H ₄) |
| CH ₂ -cyclobutyl | CH ₂ S (C ₆ H ₅) | SCH ₂ (2Cl-C ₆ H ₄) |
| CH ₂ -cyclopentyl | CH ₂ S (3CF ₃ -C ₆ H ₄) | SCH ₂ (2, 4-C ₆ H ₃) |
| CH ₂ -cyclohexyl | CH ₂ S (2Cl-C ₆ H ₄) | SCH ₂ (4CF ₃ -C ₆ H ₄) |
| cyclopropyl | CH ₂ S (4CH ₃ -C ₆ H ₄) | S (CH ₃) ₃ |
| cyclobutyl | CH ₂ S (2, 6Cl-C ₆ H ₃) | SCH ₂ CH (CH ₃) ₂ |
| cyclopentyl | CH ₂ S (2, 4Cl-C ₆ H ₃) | S (C ₆ H ₅) |
| cyclohexyl | CH ₂ NHCH ₂ CH ₃ | S (3CF ₃ -C ₆ H ₄) |

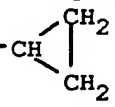
| | | |
|---|---|--|
| S (2Cl-C ₆ H ₄) | CH=CH (CH ₃) ₂ | 4Br-C ₆ H ₄ |
| S (4OCH ₃ -C ₆ H ₄) | CH ₂ CH ₂ CH=CH ₂ | 2-pyridyl |
| S (2, 4Cl-C ₆ H ₃) | CH ₂ CH=CH-CH ₃ | 2-furyl |
| S (2, 6F-C ₆ H ₃) | CH=CH-CH ₂ CH ₂ -Cl | 2-thiazolyl |
| 2 (3CH ₃ -C ₆ H ₄) | CH ₂ CH ₂ CH-ClCH ₂ -Cl | 2-imidazolyl |
| NHCH ₂ CH ₂ CH ₃ | C ₆ H ₅ | O-2 (3CF ₃ -C ₅ H ₃ N) |
| NHCH ₂ (CH ₂) ₂ CH ₃ | 3CF ₃ -C ₆ H ₄ | O-2Cl-6CF ₃ -C ₆ H ₃ |
| NHCH ₂ (CH ₂) ₄ CH ₃ | 2Cl-C ₆ H ₄ | R ¹ =NO ₂ , R ² =C(O)NH ₂ |
| NHCH ₂ (CH ₂) ₅ CH ₃ | 3CH ₃ -C ₆ H ₄ | |
| NHCH ₂ CH (CH ₃) ₂ | 3OCH ₃ -C ₆ H ₄ | R ³ |
| NHCH ₂ (C ₆ H ₅) | 2CF ₃ -C ₆ H ₄ | (CH ₂) ₂ CH ₃ |
| NHCH ₂ (3CF ₃ -C ₆ H ₄) | 2, 4Cl-C ₆ H ₃ | (CH ₂) ₃ CH ₃ |
| NHCH ₂ (2Cl-C ₆ H ₄) | 2, 6Cl-C ₆ H ₃ | (CH ₂) ₄ CH ₃ |
| NHCH ₂ (4CH ₃ -C ₆ H ₄) | 2SCH ₃ -C ₆ H ₄ | (CH ₂) ₅ CH ₃ |
| NHCH ₂ (2, 4Cl-C ₆ H ₃) | CH ₂ (C ₆ H ₅) | (CH ₂) ₆ CH ₃ |
| NHCH ₂ (2, 6Cl-C ₆ H ₃) | CH ₂ (3CF ₃ -C ₆ H ₄) | (CH ₂) ₇ CH ₃ |
| NH (C ₆ H ₅) | CH ₂ (2Cl-C ₆ H ₄) | (CH ₂) ₈ CH ₃ |
| NH (3CF ₃ -C ₆ H ₄) | CH ₂ (4Cl-C ₆ H ₄) | (CH ₂) ₉ CH ₃ |
| NH (2Cl-C ₆ H ₄) | CH ₂ (2, 4Cl-C ₆ H ₃) | CH ₂ CH (CH ₃) ₂ |
| NH (3CH ₃ -C ₆ H ₄) | CH ₂ (3SCH ₃ -C ₆ H ₄) | CH ₂ C (CH ₃) ₃ |
| NH (2, 4Cl-C ₆ H ₃) | CH ₂ (3OCH ₃ -C ₆ H ₄) | CH ₂ CH ₂ CH (CH ₃) ₂ |
| NH (2, 6Cl-C ₆ H ₃) | CH ₂ (3Cl-C ₆ H ₄) | CH ₂ CH ₂ CH ₂ CH (CH ₃) ₂ |
| N (CH ₃) (3CF ₃ -C ₆ H ₄) | CH ₂ (2, 6F-C ₆ H ₃) | CH ₂ CH ₂ CH (CH ₃)CH ₂ CH ₂ CH ₃ |
| N (CH ₃)CH ₂ CH ₂ CH ₃ | CH ₂ (2, 6Cl-C ₆ H ₃) | CH ₂ CH (CH ₃)CH ₂ CH ₂ CH ₃ |
| N (CH ₂) ₄ | CH ₂ (3, 4F-C ₆ H ₃) | CH ₂ CH (CH ₂ CH ₃)CH ₂ CH ₃ |
| N (CH ₂) ₅ | CH ₂ -Si (CH ₃) ₃ | CH ₂ CH ₂ CH ₂ OCH ₂ CH ₃ |
| N (CH ₂) ₆ | ON=C (CH ₃) ₂ | CH ₂ CH ₂ CH ₂ CH ₂ OCH ₃ |
| N (CH ₂ CH ₂ -OCH ₂ CH ₂) ₂ | ON=CH (C ₆ H ₅) | CH ₂ CH ₂ CH ₂ -S-CH ₂ CH ₃ |
| CH ₂ CO ₂ CH ₃ | ON=C (CH ₃)C ₆ H ₅ | CH ₂ CH ₂ CH ₂ CH ₂ SCH ₃ |
| CH ₂ CH ₂ CO ₂ CH ₂ CH ₃ | OCH ₂ (2, 6-Cl-C ₆ H ₃) | CH ₂ CH ₂ CH ₂ NHCH ₂ CH ₃ |
| CH ₂ CH ₂ CO ₂ CH ₃ | OCH ₂ (C=CH ₂)CH ₃ | CH ₂ CF ₂ CH (CH ₃) ₂ |
| CH ₂ CH ₂ OCH ₂ CH ₃ |  | CH ₂ CH ₂ CH ₂ CF ₂ CH ₃ |
| CH ₂ CH ₂ SCH ₂ CH ₃ | | CH ₂ -cyclopropyl |
| CH ₂ CH ₂ -NHCH ₂ CH ₃ | 4F-C ₆ H ₄ | CH ₂ -cyclobutyl |
| CH ₂ CH ₂ N (CH ₃)CH ₂ CH ₃ | 4Cl-C ₆ H ₄ | CH ₂ -cyclopentyl |

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| CH ₂ -cyclohexyl | CH ₂ S (2Cl-C ₆ H ₄) | SCH ₂ (C ₆ H ₅) |
| cyclopropyl | CH ₂ S (4CH ₃ -C ₆ H ₄) | SCH ₂ (3SCH ₃ -C ₆ H ₄) |
| cyclobutyl | CH ₂ S (2, 6Cl-C ₆ H ₃) | SCH ₂ (2OCH ₃ -C ₆ H ₄) |
| cyclopentyl | CH ₂ S (2, 4Cl-C ₆ H ₃) | SCH ₂ (2Cl-C ₆ H ₄) |
| cyclohexyl | CH ₂ NHCH ₂ CH ₃ | SCH ₂ (2, 4-C ₆ H ₃) |
| CH ₂ OCH ₂ CH ₃ | CH ₂ NHCH ₂ CH ₂ CH ₃ | SCH ₂ (4CF ₃ -C ₆ H ₄) |
| CH ₂ OCH ₂ CH ₂ CH ₃ | CH ₂ NHCH ₂ C (C ₆ H ₅) | S (CH ₃) ₃ |
| CH ₂ OCH ₂ CH (CH ₃) ₂ | CH ₂ NHCH ₂ CH (CH ₃) ₂ | SCH ₂ CH (CH ₃) ₂ |
| CH ₂ OCH ₂ (C ₆ H ₅) | CH ₂ NHCH ₂ (3CF ₃ -C ₆ H ₄) | S (C ₆ H ₅) |
| CH ₂ OCH ₂ (3CF ₃ -C ₆ H ₄) | CH ₂ NHCH ₂ (2Cl-C ₆ H ₄) | S (3CF ₃ -C ₆ H ₄) |
| CH ₂ OCH ₂ (2Cl-C ₆ H ₄) | CH ₂ NH (C ₆ H ₅) | S (2Cl-C ₆ H ₄) |
| CH ₂ OCH ₂ (3SCH ₃ -C ₆ H ₄) | CH ₂ NH (2Cl-C ₆ H ₄) | S (4OCH ₃ -C ₆ H ₄) |
| CH ₂ OCH ₂ (4Cl-C ₆ H ₄) | CH ₂ N (CH ₃) (2Cl-C ₆ H ₄) | S (2, 4Cl-C ₆ H ₃) |
| CH ₂ OCH ₂ (2, 4F-C ₆ H ₃) | OCH ₂ CH ₂ CH ₃ | S (2, 6F-C ₆ H ₃) |
| CH ₂ CH ₂ OCH ₂ CH ₂ CH ₃ | OCH ₂ (CH ₂) ₂ CH ₃ | 2 (3CH ₃ -C ₆ H ₄) |
| CH ₂ O (C ₆ H ₅) | OCH ₂ (CH ₂) ₃ CH ₃ | NHCH ₂ CH ₂ CH ₃ |
| CH ₂ O (3CF ₃ -C ₆ H ₄) | OCH ₂ (CH ₂) ₅ CH ₃ | NHCH ₂ (CH ₂) ₂ CH ₃ |
| CH ₂ O (4CF ₃ -C ₆ H ₄) | OCH ₂ C (C ₆ H ₅) | NHCH ₂ (CH ₂) ₄ CH ₃ |
| CH ₂ O (2Cl-C ₆ H ₄) | OCH ₂ CH ₂ CH (CH ₃) ₂ | NHCH ₂ (CH ₂) ₅ CH ₃ |
| CH ₂ O (3SCH ₃ -C ₆ H ₄) | OCH ₂ -Si (CH ₃) ₃ | NHCH ₂ CH (CH ₃) ₂ |
| CH ₂ O (2CH ₃ -C ₆ H ₄) |  | NHCH ₂ (C ₆ H ₅) |
| CH ₂ O (4Cl-C ₆ H ₄) | OCH ₂ (3CF ₃ -C ₆ H ₄) | NHCH ₂ (3CF ₃ -C ₆ H ₄) |
| CH ₂ O (2, 4Cl-C ₆ H ₃) | OCH ₂ (2Cl-C ₆ H ₄) | NHCH ₂ (2Cl-C ₆ H ₄) |
| CH ₂ SCH ₂ CH ₃ | OCH ₂ CH (CH ₃) ₂ | NHCH ₂ (4CH ₃ -C ₆ H ₄) |
| CH ₂ SCH ₂ CH ₂ CH ₃ | O (C ₆ H ₅) | NHCH ₂ (2, 4Cl-C ₆ H ₃) |
| CH ₂ SCH ₂ CH (CH ₃) ₂ | O (3CF ₃ -C ₆ H ₄) | NHCH ₂ (2, 6Cl-C ₆ H ₃) |
| CH ₂ SCH ₂ (C ₆ H ₅) | O (2Cl-C ₆ H ₄) | NH (C ₆ H ₅) |
| CH ₂ SCH ₂ (3CF ₃ -C ₆ H ₄) | O (4SCH ₃ -C ₆ H ₄) | NH (3CF ₃ -C ₆ H ₄) |
| CH ₂ S (2Cl-C ₆ H ₄) | O (2, 4Cl-C ₆ H ₃) | NH (2Cl-C ₆ H ₄) |
| CH ₂ S (4CH ₃ -C ₆ H ₄) | SCH ₂ CH ₂ CH ₃ | NH (3CH ₃ -C ₆ H ₄) |
| CH ₂ S (2, 4Cl-C ₆ H ₃) | SCH ₂ (CH ₂) ₂ CH ₃ | NH (2, 4Cl-C ₆ H ₃) |
| CH ₂ S (3SCH ₃ -C ₆ H ₄) | SCH ₂ (CH ₂) ₃ CH ₃ | NH (2, 6Cl-C ₆ H ₃) |
| CH ₂ S (2, 6Cl-C ₆ H ₃) | SCH ₂ (CH ₂) ₅ CH ₃ | N (CH ₃) (3CF ₃ -C ₆ H ₄) |
| CH ₂ S (C ₆ H ₅) | | N (CH ₃)CH ₂ CH ₂ CH ₃ |
| CH ₂ S (3CF ₃ -C ₆ H ₄) | | N (CH ₂) ₄ |


| | | |
|--|---|--|
| N(CH ₂) ₅ | CH ₂ -Si(CH ₃) ₃ | CH ₂ CH ₂ CH ₂ CH ₂ OCH ₃ |
| N(CH ₂) ₆ | ON=C(CH ₃) ₂ | CH ₂ CH ₂ CH ₂ -S-CH ₂ CH ₃ |
| N(CH ₂ CH ₂ -OCH ₂ CH ₂) ₂ | ON=CH(C ₆ H ₅) | CH ₂ CH ₂ CH ₂ CH ₂ SCH ₃ |
| CH ₂ CO ₂ CH ₃ | ON=C(CH ₃)C ₆ H ₅ | CH ₂ CH ₂ CH ₂ NHCH ₂ CH ₃ |
| CH ₂ CH ₂ CO ₂ CH ₂ CH ₃ | OCH ₂ (2, 6-Cl-C ₆ H ₃) | CH ₂ CF ₂ CH(CH ₃) ₂ |
| CH ₂ CH ₂ CO ₂ CH ₃ | OCH ₂ (C=CH ₂)CH ₃ | CH ₂ CH ₂ CH ₂ CF ₂ CH ₃ |
| CH ₂ CH ₂ OCH ₂ CH ₃ | OCH ₂ -CH ₂ CH ₂ | CH ₂ -cyclopropyl |
| CH ₂ CH ₂ SCH ₂ CH ₃ | | CH ₂ -cyclobutyl |
| CH ₂ CH ₂ -NHCH ₂ CH ₃ | 4F-C ₆ H ₄ | CH ₂ -cyclopentyl |
| CH ₂ CH ₂ N(CH ₃)CH ₂ CH ₃ | 4Cl-C ₆ H ₄ | CH ₂ -cyclohexyl |
| CH=CH(CH ₃) ₂ | 4Br-C ₆ H ₄ | cyclopropyl |
| CH ₂ CH ₂ CH=CH ₂ | 2-pyridyl | cyclobutyl |
| CH ₂ CH=CH-CH ₃ | 2-furyl | cyclopentyl |
| CH=CH-CH ₂ CH ₂ -Cl | 2-thiazolyl | cyclohexyl |
| CH ₂ CH ₂ CH-ClCH ₂ -Cl | 2-imidazolyl | CH ₂ OCH ₂ CH ₃ |
| C ₆ H ₅ | O-2(3CF ₃ -C ₅ H ₃ N) | CH ₂ OCH ₂ CH ₂ CH ₃ |
| 3CF ₃ -C ₆ H ₄ | O-2Cl-6CF ₃ -C ₆ H ₃ | CH ₂ OCH ₂ CH(CH ₃) ₂ |
| 2Cl-C ₆ H ₄ | | CH ₂ OCH ₂ (C ₆ H ₅) |
| 3CH ₃ -C ₆ H ₄ | R ¹ =Cl, R ² =C≡N | CH ₂ OCH ₂ (3CF ₃ -C ₆ H ₄) |
| 3OCH ₃ -C ₆ H ₄ | R ³ | CH ₂ OCH ₂ (2Cl-C ₆ H ₄) |
| 2CF ₃ -C ₆ H ₄ | (CH ₂) ₂ CH ₃ | CH ₂ OCH ₂ (3SCH ₃ -C ₆ H ₄) |
| 2, 4Cl-C ₆ H ₃ | (CH ₂) ₃ CH ₃ | CH ₂ OCH ₂ (4Cl-C ₆ H ₄) |
| 2, 6Cl-C ₆ H ₃ | (CH ₂) ₄ CH ₃ | CH ₂ OCH ₂ (2, 4F-C ₆ H ₃) |
| 2SCH ₃ -C ₆ H ₄ | (CH ₂) ₅ CH ₃ | CH ₂ CH ₂ OCH ₂ CH ₂ CH ₃ |
| CH ₂ (C ₆ H ₅) | (CH ₂) ₆ CH ₃ | CH ₂ O(C ₆ H ₅) |
| CH ₂ (3CF ₃ -C ₆ H ₄) | (CH ₂) ₇ CH ₃ | CH ₂ O(3CF ₃ -C ₆ H ₄) |
| CH ₂ (2Cl-C ₆ H ₄) | (CH ₂) ₈ CH ₃ | CH ₂ O(4CF ₃ -C ₆ H ₄) |
| CH ₂ (4Cl-C ₆ H ₄) | (CH ₂) ₉ CH ₃ | CH ₂ O(2Cl-C ₆ H ₄) |
| CH ₂ (2, 4Cl-C ₆ H ₃) | CH ₂ CH(CH ₃) ₂ | CH ₂ O(3SCH ₃ -C ₆ H ₄) |
| CH ₂ (3SCH ₃ -C ₆ H ₄) | CH ₂ CH ₂ CH(CH ₃) ₂ | CH ₂ O(2CH ₃ -C ₆ H ₄) |
| CH ₂ (3OCH ₃ -C ₆ H ₄) | CH ₂ CH ₂ CH ₂ CH(CH ₃) ₂ | CH ₂ O(4Cl-C ₆ H ₄) |
| CH ₂ (3Cl-C ₆ H ₄) | CH ₂ CH ₂ CH(CH ₃)CH ₂ CH ₂ CH ₃ | CH ₂ O(2, 4Cl-C ₆ H ₃) |
| CH ₂ (2, 6F-C ₆ H ₃) | CH ₂ CH(CH ₃)CH ₂ CH ₂ CH ₃ | CH ₂ SCH ₂ CH ₃ |
| CH ₂ (2, 6Cl-C ₆ H ₃) | CH ₂ CH(CH ₂ CH ₃)CH ₂ CH ₃ | CH ₂ SCH ₂ CH ₂ CH ₃ |
| CH ₂ (3, 4F-C ₆ H ₃) | CH ₂ CH ₂ CH ₂ OCH ₂ CH ₃ | CH ₂ SCH ₂ CH(CH ₃) ₂ |

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| CH ₂ SCH ₂ (C ₆ H ₅) | SCH ₂ CH ₂ CH ₃ | NH (2, 6Cl-C ₆ H ₃) |
| CH ₂ SCH ₂ (3CF ₃ -C ₆ H ₄) | SCH ₂ (CH ₂) ₂ CH ₃ | N (CH ₃) (3CF ₃ -C ₆ H ₄) |
| CH ₂ S (2Cl-C ₆ H ₄) | SCH ₂ (CH ₂) ₃ CH ₃ | N (CH ₃) CH ₂ CH ₂ CH ₃ |
| CH ₂ S (4CH ₃ -C ₆ H ₄) | SCH ₂ (CH ₂) ₅ CH ₃ | N (CH ₂) ₄ |
| CH ₂ S (2, 4Cl-C ₆ H ₃) | SCH ₂ (C ₆ H ₅) | N (CH ₂) ₅ |
| CH ₂ S (3SCH ₃ -C ₆ H ₄) | SCH ₂ (3SCH ₃ -C ₆ H ₄) | N (CH ₂) ₆ |
| CH ₂ S (2, 6Cl-C ₆ H ₃) | SCH ₂ (2OCH ₃ -C ₆ H ₄) | N (CH ₂ CH ₂ -OCH ₂ CH ₂) ₂ |
| CH ₂ S (C ₆ H ₅) | SCH ₂ (2Cl-C ₆ H ₄) | CH ₂ CO ₂ CH ₃ |
| CH ₂ S (3CF ₃ -C ₆ H ₄) | SCH ₂ (2, 4-C ₆ H ₃) | CH ₂ CH ₂ CO ₂ CH ₂ CH ₃ |
| CH ₂ S (2Cl-C ₆ H ₄) | SCH ₂ (4CF ₃ -C ₆ H ₄) | CH ₂ CH ₂ CO ₂ CH ₃ |
| CH ₂ S (4CH ₃ -C ₆ H ₄) | S (CH ₃) ₃ | CH ₂ CH ₂ OCH ₂ CH ₃ |
| CH ₂ S (2, 6Cl-C ₆ H ₃) | SCH ₂ CH (CH ₃) ₂ | CH ₂ CH ₂ SCH ₂ CH ₃ |
| CH ₂ S (2, 4Cl-C ₆ H ₃) | S (C ₆ H ₅) | CH ₂ CH ₂ -NHCH ₂ CH ₃ |
| CH ₂ NHCH ₂ CH ₃ | S (3CF ₃ -C ₆ H ₄) | CH ₂ CH ₂ N (CH ₃) CH ₂ CH ₃ |
| CH ₂ NHCH ₂ CH ₂ CH ₃ | S (2Cl-C ₆ H ₄) | CH=CH (CH ₃) ₂ |
| CH ₂ NHCH ₂ C (C ₆ H ₅) | S (4OCH ₃ -C ₆ H ₄) | CH ₂ CH ₂ CH=CH ₂ |
| CH ₂ NHCH ₂ CH (CH ₃) ₂ | S (2, 4Cl-C ₆ H ₃) | CH ₂ CH=CH-CH ₃ |
| CH ₂ NHCH ₂ (3CF ₃ -C ₆ H ₄) | S (2, 6F-C ₆ H ₃) | CH=CH-CH ₂ CH ₂ -Cl |
| CH ₂ NHCH ₂ (2Cl-C ₆ H ₄) | 2 (3CH ₃ -C ₆ H ₄) | CH ₂ CH ₂ CH-ClCH ₂ -Cl |
| CH ₂ NH (C ₆ H ₅) | NHCH ₂ CH ₂ CH ₃ | C ₆ H ₅ |
| CH ₂ NH (2Cl-C ₆ H ₄) | NHCH ₂ (CH ₂) ₂ CH ₃ | 3CF ₃ -C ₆ H ₄ |
| CH ₂ N (CH ₃) (2Cl-C ₆ H ₄) | NHCH ₂ (CH ₂) ₄ CH ₃ | 2Cl-C ₆ H ₄ |
| OCH ₂ CH ₂ CH ₃ | NHCH ₂ (CH ₂) ₅ CH ₃ | 3CH ₃ -C ₆ H ₄ |
| OCH ₂ (CH ₂) ₂ CH ₃ | NHCH ₂ CH (CH ₃) ₂ | 3OCH ₃ -C ₆ H ₄ |
| OCH ₂ (CH ₂) ₃ CH ₃ | NHCH ₂ (C ₆ H ₅) | 2CF ₃ -C ₆ H ₄ |
| OCH ₂ (CH ₂) ₅ CH ₃ | NHCH ₂ (3CF ₃ -C ₆ H ₄) | 2, 4Cl-C ₆ H ₃ |
| OCH ₂ C (C ₆ H ₅) | NHCH ₂ (2Cl-C ₆ H ₄) | 2, 6Cl-C ₆ H ₃ |
| OCH ₂ (3CF ₃ -C ₆ H ₄) | NHCH ₂ (4CH ₃ -C ₆ H ₄) | 2SCH ₃ -C ₆ H ₄ |
| OCH ₂ (2Cl-C ₆ H ₄) | NHCH ₂ (2, 4Cl-C ₆ H ₃) | CH ₂ (C ₆ H ₅) |
| OCH ₂ CH (CH ₃) ₂ | NHCH ₂ (2, 6Cl-C ₆ H ₃) | CH ₂ (3CF ₃ -C ₆ H ₄) |
| O (C ₆ H ₅) | NH (C ₆ H ₅) | CH ₂ (2Cl-C ₆ H ₄) |
| O (3CF ₃ -C ₆ H ₄) | NH (3CF ₃ -C ₆ H ₄) | CH ₂ (4Cl-C ₆ H ₄) |
| O (2Cl-C ₆ H ₄) | NH (2Cl-C ₆ H ₄) | CH ₂ (2, 4Cl-C ₆ H ₃) |
| O (4SCH ₃ -C ₆ H ₄) | NH (3CH ₃ -C ₆ H ₄) | CH ₂ (3SCH ₃ -C ₆ H ₄) |
| O (2, 4Cl-C ₆ H ₃) | NH (2, 4Cl-C ₆ H ₃) | CH ₂ (3OCH ₃ -C ₆ H ₄) |

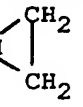
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|--|---|--|
| CH ₂ (3Cl-C ₆ H ₄) | CH ₂ CH ₂ CH (CH ₃) CH ₂ CH ₂ CH ₃ | CH ₂ O (2, 4Cl-C ₆ H ₃) |
| CH ₂ (2, 6F-C ₆ H ₃) | CH ₂ CH (CH ₃) CH ₂ CH ₂ CH ₃ | CH ₂ SCH ₂ CH ₃ |
| CH ₂ (2, 6Cl-C ₆ H ₃) | CH ₂ CH (CH ₂ CH ₃) CH ₂ CH ₃ | CH ₂ SCH ₂ CH ₂ CH ₃ |
| CH ₂ (3, 4F-C ₆ H ₃) | CH ₂ CH ₂ CH ₂ OCH ₂ CH ₃ | CH ₂ SCH ₂ CH (CH ₃) ₂ |
| CH ₂ -Si (CH ₃) ₃ | CH ₂ CH ₂ CH ₂ CH ₂ OCH ₃ | CH ₂ SCH ₂ (C ₆ H ₅) |
| ON=C (CH ₃) ₂ | CH ₂ CH ₂ CH ₂ -S-CH ₂ CH ₃ | CH ₂ SCH ₂ (3CF ₃ -C ₆ H ₄) |
| ON=CH (C ₆ H ₅) | CH ₂ CH ₂ CH ₂ CH ₂ SCH ₃ | CH ₂ S (2Cl-C ₆ H ₄) |
| ON=C (CH ₃) C ₆ H ₅ | CH ₂ CH ₂ CH ₂ NHCH ₂ CH ₃ | CH ₂ S (4CH ₃ -C ₆ H ₄) |
| OCH ₂ (2, 6-Cl-C ₆ H ₃) | CH ₂ CF ₂ CH (CH ₃) ₂ | CH ₂ S (2, 4Cl-C ₆ H ₃) |
| OCH ₂ (C=CH ₂) CH ₃ | CH ₂ CH ₂ CH ₂ CF ₂ CH ₃ | CH ₂ S (3SCH ₃ -C ₆ H ₄) |
| OCH ₂ -CH  | CH ₂ -cyclopropyl | CH ₂ S (2, 6Cl-C ₆ H ₃) |
| 4F-C ₆ H ₄ | CH ₂ -cyclobutyl | CH ₂ S (C ₆ H ₅) |
| 4Cl-C ₆ H ₄ | CH ₂ -cyclopentyl | CH ₂ S (3CF ₃ -C ₆ H ₄) |
| 4Br-C ₆ H ₄ | CH ₂ -cyclohexyl | CH ₂ S (2Cl-C ₆ H ₄) |
| 2-pyridyl | cyclopropyl | CH ₂ S (4CH ₃ -C ₆ H ₄) |
| 2-furyl | cyclobutyl | CH ₂ S (2, 6Cl-C ₆ H ₃) |
| 2-thiazolyl | cyclopentyl | CH ₂ S (2, 4Cl-C ₆ H ₃) |
| 2-imidazolyl | cyclohexyl | CH ₂ NHCH ₂ CH ₃ |
| O-2 (3CF ₃ -C ₅ H ₃ N) | CH ₂ OCH ₂ CH ₃ | CH ₂ NHCH ₂ CH ₂ CH ₃ |
| O-2Cl-6CF ₃ -C ₆ H ₃ | CH ₂ OCH ₂ CH ₂ CH ₃ | CH ₂ NHCH ₂ C (C ₆ H ₅) |
| | CH ₂ OCH ₂ CH (CH ₃) ₂ | CH ₂ NHCH ₂ CH (CH ₃) ₂ |
| | CH ₂ OCH ₂ (C ₆ H ₅) | CH ₂ NHCH ₂ (3CF ₃ -C ₆ H ₄) |
| R ¹ =Br, R ² =C≡N | CH ₂ OCH ₂ (3CF ₃ -C ₆ H ₄) | CH ₂ NHCH ₂ (2Cl-C ₆ H ₄) |
| R ³ | CH ₂ OCH ₂ (2Cl-C ₆ H ₄) | CH ₂ NH (C ₆ H ₅) |
| (CH ₂) ₂ CH ₃ | CH ₂ OCH ₂ (3SCH ₃ -C ₆ H ₄) | CH ₂ NH (2Cl-C ₆ H ₄) |
| (CH ₂) ₃ CH ₃ | CH ₂ OCH ₂ (4Cl-C ₆ H ₄) | CH ₂ N (CH ₃) (2Cl-C ₆ H ₄) |
| (CH ₂) ₄ CH ₃ | CH ₂ OCH ₂ (2, 4F-C ₆ H ₃) | OCH ₂ CH ₂ CH ₃ |
| (CH ₂) ₅ CH ₃ | CH ₂ CH ₂ OCH ₂ CH ₂ CH ₃ | OCH ₂ (CH ₂) ₂ CH ₃ |
| (CH ₂) ₆ CH ₃ | CH ₂ O (C ₆ H ₅) | OCH ₂ (CH ₂) ₃ CH ₃ |
| (CH ₂) ₇ CH ₃ | CH ₂ O (3CF ₃ -C ₆ H ₄) | OCH ₂ (CH ₂) ₅ CH ₃ |
| (CH ₂) ₈ CH ₃ | CH ₂ O (4CF ₃ -C ₆ H ₄) | OCH ₂ C (C ₆ H ₅) |
| (CH ₂) ₉ CH ₃ | CH ₂ O (2Cl-C ₆ H ₄) | OCH ₂ (3CF ₃ -C ₆ H ₄) |
| CH ₂ CH (CH ₃) ₂ | CH ₂ O (3SCH ₃ -C ₆ H ₄) | OCH ₂ (2Cl-C ₆ H ₄) |
| CH ₂ CH ₂ CH (CH ₃) ₂ | CH ₂ O (2CH ₃ -C ₆ H ₄) | OCH ₂ CH (CH ₃) ₂ |
| CH ₂ CH ₂ CH ₂ CH (CH ₃) ₂ | CH ₂ O (4Cl-C ₆ H ₄) | O (C ₆ H ₅) |

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|--|--|--|
| O (3CF ₃ -C ₆ H ₄) | NH (3CF ₃ -C ₆ H ₄) | CH ₂ (4Cl-C ₆ H ₄) |
| O (2Cl-C ₆ H ₄) | NH (2Cl-C ₆ H ₄) | CH ₂ (2, 4Cl-C ₆ H ₃) |
| O (4SCH ₃ -C ₆ H ₄) | NH (3CH ₃ -C ₆ H ₄) | CH ₂ (3SCH ₃ -C ₆ H ₄) |
| O (2, 4Cl-C ₆ H ₃) | NH (2, 4Cl-C ₆ H ₃) | CH ₂ (3OCH ₃ -C ₆ H ₄) |
| SCH ₂ CH ₂ CH ₃ | NH (2, 6Cl-C ₆ H ₃) | CH ₂ (3Cl-C ₆ H ₄) |
| SCH ₂ (CH ₂) ₂ CH ₃ | N (CH ₃) (3CF ₃ -C ₆ H ₄) | CH ₂ (2, 6F-C ₆ H ₃) |
| SCH ₂ (CH ₂) ₃ CH ₃ | N (CH ₃) CH ₂ CH ₂ CH ₃ | CH ₂ (2, 6Cl-C ₆ H ₃) |
| SCH ₂ (CH ₂) ₅ CH ₃ | N (CH ₂) ₄ | CH ₂ (3, 4F-C ₆ H ₃) |
| SCH ₂ (C ₆ H ₅) | N (CH ₂) ₅ | CH ₂ -Si (CH ₃) ₃ |
| SCH ₂ (3SCH ₃ -C ₆ H ₄) | N (CH ₂) ₆ | ON=C (CH ₃) ₂ |
| SCH ₂ (2OCH ₃ -C ₆ H ₄) | N (CH ₂ CH ₂ -OCH ₂ CH ₂) ₂ | ON=CH (C ₆ H ₅) |
| SCH ₂ (2Cl-C ₆ H ₄) | CH ₂ CO ₂ CH ₃ | ON=C (CH ₃) C ₆ H ₅ |
| SCH ₂ (2, 4-C ₆ H ₃) | CH ₂ CH ₂ CO ₂ CH ₂ CH ₃ | OCH ₂ (2, 6-Cl-C ₆ H ₃) |
| SCH ₂ (4CF ₃ -C ₆ H ₄) | CH ₂ CH ₂ CO ₂ CH ₃ | OCH ₂ (C=CH ₂) CH ₃ |
| S (CH ₃) ₃ | CH ₂ CH ₂ OCH ₂ CH ₃ | OCH ₂ -CH  |
| SCH ₂ CH (CH ₃) ₂ | CH ₂ CH ₂ SCH ₂ CH ₃ | 4F-C ₆ H ₄ |
| S (C ₆ H ₅) | CH ₂ CH ₂ -NHCH ₂ CH ₃ | 4Cl-C ₆ H ₄ |
| S (3CF ₃ -C ₆ H ₄) | CH ₂ CH ₂ N (CH ₃) CH ₂ CH ₃ | 4Br-C ₆ H ₄ |
| S (2Cl-C ₆ H ₄) | CH=CH (CH ₃) ₂ | 2-pyridyl |
| S (4OCH ₃ -C ₆ H ₄) | CH ₂ CH ₂ CH=CH ₂ | 2-furyl |
| S (2, 4Cl-C ₆ H ₃) | CH ₂ CH=CH-CH ₃ | 2-thiazolyl |
| S (2, 6F-C ₆ H ₃) | CH=CH-CH ₂ CH ₂ -Cl | 2-imidazolyl |
| 2 (3CH ₃ -C ₆ H ₄) | CH ₂ CH ₂ CH-ClCH ₂ -Cl | O-2 (3CF ₃ -C ₅ H ₃ N) |
| NHCH ₂ CH ₂ CH ₃ | C ₆ H ₅ | O-2Cl-6CF ₃ -C ₆ H ₃ |
| NHCH ₂ (CH ₂) ₂ CH ₃ | 3CF ₃ -C ₆ H ₄ | |
| NHCH ₂ (CH ₂) ₄ CH ₃ | 2Cl-C ₆ H ₄ | |
| NHCH ₂ (CH ₂) ₅ CH ₃ | 3CH ₃ -C ₆ H ₄ | |
| NHCH ₂ CH (CH ₃) ₂ | 3OCH ₃ -C ₆ H ₄ | |
| NHCH ₂ (C ₆ H ₅) | 2CF ₃ -C ₆ H ₄ | |
| NHCH ₂ (3CF ₃ -C ₆ H ₄) | 2, 4Cl-C ₆ H ₃ | |
| NHCH ₂ (2Cl-C ₆ H ₄) | 2, 6Cl-C ₆ H ₃ | |
| NHCH ₂ (4CH ₃ -C ₆ H ₄) | 2SCH ₃ -C ₆ H ₄ | |
| NHCH ₂ (2, 4Cl-C ₆ H ₃) | CH ₂ (C ₆ H ₅) | |
| NHCH ₂ (2, 6Cl-C ₆ H ₃) | CH ₂ (3CF ₃ -C ₆ H ₄) | |
| NH (C ₆ H ₅) | CH ₂ (2Cl-C ₆ H ₄) | |
| | | R ¹ =I, R ² =C≡N |
| | | R ³ |
| | | (CH ₂) ₂ CH ₃ |
| | | (CH ₂) ₃ CH ₃ |
| | | (CH ₂) ₄ CH ₃ |
| | | (CH ₂) ₅ CH ₃ |
| | | (CH ₂) ₆ CH ₃ |
| | | (CH ₂) ₇ CH ₃ |
| | | (CH ₂) ₈ CH ₃ |

| | | |
|--|---|---|
| $(\text{CH}_2)_9\text{CH}_3$ | $\text{CH}_2\text{O} (2\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{OCH}_2 (3\text{CF}_3-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2\text{CH} (\text{CH}_3)_2$ | $\text{CH}_2\text{O} (3\text{SCH}_3-\text{C}_6\text{H}_4)$ | $\text{OCH}_2 (2\text{Cl}-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2\text{CH}_2\text{CH} (\text{CH}_3)_2$ | $\text{CH}_2\text{O} (2\text{CH}_3-\text{C}_6\text{H}_4)$ | $\text{OCH}_2\text{CH} (\text{CH}_3)_2$ |
| $\text{CH}_2\text{CH}_2\text{CH}_2\text{CH} (\text{CH}_3)_2$ | $\text{CH}_2\text{O} (4\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{O} (\text{C}_6\text{H}_5)$ |
| $\text{CH}_2\text{CH}_2\text{CH} (\text{CH}_3)\text{CH}_2\text{CH}_2\text{CH}_3$ | $\text{CH}_2\text{O} (2, 4\text{Cl}-\text{C}_6\text{H}_3)$ | $\text{O} (3\text{CF}_3-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2\text{CH} (\text{CH}_3)\text{CH}_2\text{CH}_2\text{CH}_3$ | $\text{CH}_2\text{SCH}_2\text{CH}_3$ | $\text{O} (2\text{Cl}-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2\text{CH} (\text{CH}_2\text{CH}_3)\text{CH}_2\text{CH}_3$ | $\text{CH}_2\text{SCH}_2\text{CH}_2\text{CH}_3$ | $\text{O} (4\text{SCH}_3-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_3$ | $\text{CH}_2\text{SCH}_2\text{CH} (\text{CH}_3)_2$ | $\text{O} (2, 4\text{Cl}-\text{C}_6\text{H}_3)$ |
| $\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{OCH}_3$ | $\text{CH}_2\text{SCH}_2 (\text{C}_6\text{H}_5)$ | $\text{SCH}_2\text{CH}_2\text{CH}_3$ |
| $\text{CH}_2\text{CH}_2\text{CH}_2-\text{S}-\text{CH}_2\text{CH}_3$ | $\text{CH}_2\text{SCH}_2 (3\text{CF}_3-\text{C}_6\text{H}_4)$ | $\text{SCH}_2 (\text{CH}_2)_2\text{CH}_3$ |
| $\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{SCH}_3$ | $\text{CH}_2\text{S} (2\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{SCH}_2 (\text{CH}_2)_3\text{CH}_3$ |
| $\text{CH}_2\text{CH}_2\text{CH}_2\text{NHCH}_2\text{CH}_3$ | $\text{CH}_2\text{S} (4\text{CH}_3-\text{C}_6\text{H}_4)$ | $\text{SCH}_2 (\text{CH}_2)_5\text{CH}_3$ |
| $\text{CH}_2\text{CF}_2\text{CH} (\text{CH}_3)_2$ | $\text{CH}_2\text{S} (2, 4\text{Cl}-\text{C}_6\text{H}_3)$ | $\text{SCH}_2 (\text{C}_6\text{H}_5)$ |
| $\text{CH}_2\text{CH}_2\text{CH}_2\text{CF}_2\text{CH}_3$ | $\text{CH}_2\text{S} (3\text{SCH}_3-\text{C}_6\text{H}_4)$ | $\text{SCH}_2 (3\text{SCH}_3-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2\text{-cyclopropyl}$ | $\text{CH}_2\text{S} (2, 6\text{Cl}-\text{C}_6\text{H}_3)$ | $\text{SCH}_2 (2\text{OCH}_3-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2\text{-cyclobutyl}$ | $\text{CH}_2\text{S} (\text{C}_6\text{H}_5)$ | $\text{SCH}_2 (2\text{Cl}-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2\text{-cyclopentyl}$ | $\text{CH}_2\text{S} (3\text{CF}_3-\text{C}_6\text{H}_4)$ | $\text{SCH}_2 (2, 4-\text{C}_6\text{H}_3)$ |
| $\text{CH}_2\text{-cyclohexyl}$ | $\text{CH}_2\text{S} (2\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{SCH}_2 (4\text{CF}_3-\text{C}_6\text{H}_4)$ |
| cyclopropyl | $\text{CH}_2\text{S} (4\text{CH}_3-\text{C}_6\text{H}_4)$ | $\text{S} (\text{CH}_3)_3$ |
| cyclobutyl | $\text{CH}_2\text{S} (2, 6\text{Cl}-\text{C}_6\text{H}_3)$ | $\text{SCH}_2\text{CH} (\text{CH}_3)_2$ |
| cyclopentyl | $\text{CH}_2\text{S} (2, 4\text{Cl}-\text{C}_6\text{H}_3)$ | $\text{S} (\text{C}_6\text{H}_5)$ |
| cyclohexyl | $\text{CH}_2\text{NHCH}_2\text{CH}_3$ | $\text{S} (3\text{CF}_3-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2\text{OCH}_2\text{CH}_3$ | $\text{CH}_2\text{NHCH}_2\text{CH}_2\text{CH}_3$ | $\text{S} (2\text{Cl}-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2\text{OCH}_2\text{CH}_2\text{CH}_3$ | $\text{CH}_2\text{NHCH}_2\text{C} (\text{C}_6\text{H}_5)$ | $\text{S} (4\text{OCH}_3-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2\text{OCH}_2\text{CH} (\text{CH}_3)_2$ | $\text{CH}_2\text{NHCH}_2\text{CH} (\text{CH}_3)_2$ | $\text{S} (2, 4\text{Cl}-\text{C}_6\text{H}_3)$ |
| $\text{CH}_2\text{OCH}_2 (\text{C}_6\text{H}_5)$ | $\text{CH}_2\text{NHCH}_2 (3\text{CF}_3-\text{C}_6\text{H}_4)$ | $\text{S} (2, 6\text{F}-\text{C}_6\text{H}_3)$ |
| $\text{CH}_2\text{OCH}_2 (3\text{CF}_3-\text{C}_6\text{H}_4)$ | $\text{CH}_2\text{NHCH}_2 (2\text{Cl}-\text{C}_6\text{H}_4)$ | $2 (3\text{CH}_3-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2\text{OCH}_2 (2\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{CH}_2\text{NH} (\text{C}_6\text{H}_5)$ | $\text{NHCH}_2\text{CH}_2\text{CH}_3$ |
| $\text{CH}_2\text{OCH}_2 (3\text{SCH}_3-\text{C}_6\text{H}_4)$ | $\text{CH}_2\text{NH} (2\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{NHCH}_2 (\text{CH}_2)_2\text{CH}_3$ |
| $\text{CH}_2\text{OCH}_2 (4\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{CH}_2\text{N} (\text{CH}_3) (2\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{NHCH}_2 (\text{CH}_2)_4\text{CH}_3$ |
| $\text{CH}_2\text{OCH}_2 (2, 4\text{F}-\text{C}_6\text{H}_3)$ | $\text{OCH}_2\text{CH}_2\text{CH}_3$ | $\text{NHCH}_2 (\text{CH}_2)_5\text{CH}_3$ |
| $\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_2\text{CH}_3$ | $\text{OCH}_2 (\text{CH}_2)_2\text{CH}_3$ | $\text{NHCH}_2\text{CH} (\text{CH}_3)_2$ |
| $\text{CH}_2\text{O} (\text{C}_6\text{H}_5)$ | $\text{OCH}_2 (\text{CH}_2)_3\text{CH}_3$ | $\text{NHCH}_2 (\text{C}_6\text{H}_5)$ |
| $\text{CH}_2\text{O} (3\text{CF}_3-\text{C}_6\text{H}_4)$ | $\text{OCH}_2 (\text{CH}_2)_5\text{CH}_3$ | $\text{NHCH}_2 (3\text{CF}_3-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2\text{O} (4\text{CF}_3-\text{C}_6\text{H}_4)$ | $\text{OCH}_2\text{C} (\text{C}_6\text{H}_5)$ | $\text{NHCH}_2 (2\text{Cl}-\text{C}_6\text{H}_4)$ |

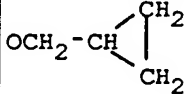
| | | |
|--|--|---|
| NHCH ₂ (4CH ₃ -C ₆ H ₄) | 2SCH ₃ -C ₆ H ₄ | (CH ₂) ₅ CH ₃ |
| NHCH ₂ (2, 4Cl-C ₆ H ₃) | CH ₂ (C ₆ H ₅) | (CH ₂) ₆ CH ₃ |
| NHCH ₂ (2, 6Cl-C ₆ H ₃) | CH ₂ (3CF ₃ -C ₆ H ₄) | (CH ₂) ₇ CH ₃ |
| NH (C ₆ H ₅) | CH ₂ (2Cl-C ₆ H ₄) | (CH ₂) ₈ CH ₃ |
| NH (3CF ₃ -C ₆ H ₄) | CH ₂ (4Cl-C ₆ H ₄) | (CH ₂) ₉ CH ₃ |
| NH (2Cl-C ₆ H ₄) | CH ₂ (2, 4Cl-C ₆ H ₃) | CH ₂ CH (CH ₃) ₂ |
| NH (3CH ₃ -C ₆ H ₄) | CH ₂ (3SCH ₃ -C ₆ H ₄) | CH ₂ CH ₂ CH (CH ₃) ₂ |
| NH (2, 4Cl-C ₆ H ₃) | CH ₂ (3OCH ₃ -C ₆ H ₄) | CH ₂ CH ₂ CH ₂ CH (CH ₃) ₂ |
| NH (2, 6Cl-C ₆ H ₃) | CH ₂ (3Cl-C ₆ H ₄) | CH ₂ CH ₂ CH (CH ₃) CH ₂ CH ₂ CH ₃ |
| N (CH ₃) (3CF ₃ -C ₆ H ₄) | CH ₂ (2, 6F-C ₆ H ₃) | CH ₂ CH (CH ₃) CH ₂ CH ₂ CH ₃ |
| N (CH ₃) CH ₂ CH ₂ CH ₃ | CH ₂ (2, 6Cl-C ₆ H ₃) | CH ₂ CH (CH ₂ CH ₃) CH ₂ CH ₃ |
| N (CH ₂) ₄ | CH ₂ (3, 4F-C ₆ H ₃) | CH ₂ CH ₂ CH ₂ OCH ₂ CH ₃ |
| N (CH ₂) ₅ | CH ₂ -Si (CH ₃) ₃ | CH ₂ CH ₂ CH ₂ CH ₂ OCH ₃ |
| N (CH ₂) ₆ | ON=C (CH ₃) ₂ | CH ₂ CH ₂ CH ₂ -S-CH ₂ CH ₃ |
| N (CH ₂ CH ₂ -OCH ₂ CH ₂) ₂ | ON=CH (C ₆ H ₅) | CH ₂ CH ₂ CH ₂ CH ₂ SCH ₃ |
| CH ₂ CO ₂ CH ₃ | ON=C (CH ₃) C ₆ H ₅ | CH ₂ CH ₂ CH ₂ NHCH ₂ CH ₃ |
| CH ₂ CH ₂ CO ₂ CH ₂ CH ₃ | OCH ₂ (2, 6-Cl-C ₆ H ₃) | CH ₂ CF ₂ CH (CH ₃) ₂ |
| CH ₂ CH ₂ CO ₂ CH ₃ | OCH ₂ (C=CH ₂) CH ₃ | CH ₂ CH ₂ CH ₂ CF ₂ CH ₃ |
| CH ₂ CH ₂ OCH ₂ CH ₃ | OCH ₂ -CH  | CH ₂ -cyclopropyl |
| CH ₂ CH ₂ SCH ₂ CH ₃ | 4F-C ₆ H ₄ | CH ₂ -cyclobutyl |
| CH ₂ CH ₂ -NHCH ₂ CH ₃ | 4Cl-C ₆ H ₄ | CH ₂ -cyclopentyl |
| CH ₂ CH ₂ N (CH ₃) CH ₂ CH ₃ | 4Br-C ₆ H ₄ | CH ₂ -cyclohexyl |
| CH=CH (CH ₃) ₂ | 2-pyridyl | cyclopropyl |
| CH ₂ CH ₂ CH=CH ₂ | 2-furyl | cyclobutyl |
| CH ₂ CH=CH-CH ₃ | 2-thiazolyl | cyclopentyl |
| CH=CH-CH ₂ CH ₂ -Cl | 2-imidazolyl | cyclohexyl |
| CH ₂ CH ₂ CH-ClCH ₂ -Cl | O-2 (3CF ₃ -C ₅ H ₃ N) | CH ₂ OCH ₂ CH ₃ |
| C ₆ H ₅ | O-2Cl-6CF ₃ -C ₆ H ₃ | CH ₂ OCH ₂ CH (CH ₃) ₂ |
| 3CF ₃ -C ₆ H ₄ | | CH ₂ OCH ₂ (C ₆ H ₅) |
| 2Cl-C ₆ H ₄ | | CH ₂ OCH ₂ (3CF ₃ -C ₆ H ₄) |
| 3CH ₃ -C ₆ H ₄ | | CH ₂ OCH ₂ (2Cl-C ₆ H ₄) |
| 3OCH ₃ -C ₆ H ₄ | | CH ₂ OCH ₂ (3SCH ₃ -C ₆ H ₄) |
| 2CF ₃ -C ₆ H ₄ | | CH ₂ OCH ₂ (4Cl-C ₆ H ₄) |
| 2, 4Cl-C ₆ H ₃ | | CH ₂ OCH ₂ (2, 4F-C ₆ H ₃) |
| 2, 6Cl-C ₆ H ₃ | | |
| | R ¹ =OCH ₃ , R ² =C≡N | |
| | R ³ | |
| | (CH ₂) ₂ CH ₃ | |
| | (CH ₂) ₃ CH ₃ | |
| | (CH ₂) ₄ CH ₃ | |

| | | |
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| CH ₂ CH ₂ OCH ₂ CH ₂ CH ₃ | OCH ₂ (CH ₂) ₂ CH ₃ | NHCH ₂ CH(CH ₃) ₂ |
| CH ₂ O(C ₆ H ₅) | OCH ₂ (CH ₂) ₃ CH ₃ | NHCH ₂ (C ₆ H ₅) |
| CH ₂ O(3CF ₃ -C ₆ H ₄) | OCH ₂ (CH ₂) ₅ CH ₃ | NHCH ₂ (3CF ₃ -C ₆ H ₄) |
| CH ₂ O(4CF ₃ -C ₆ H ₄) | OCH ₂ C(C ₆ H ₅) | NHCH ₂ (2Cl-C ₆ H ₄) |
| CH ₂ O(2Cl-C ₆ H ₄) | OCH ₂ (3CF ₃ -C ₆ H ₄) | NHCH ₂ (4CH ₃ -C ₆ H ₄) |
| CH ₂ O(3SCH ₃ -C ₆ H ₄) | OCH ₂ (2Cl-C ₆ H ₄) | NHCH ₂ (2,4Cl-C ₆ H ₃) |
| CH ₂ O(2CH ₃ -C ₆ H ₄) | OCH ₂ CH(CH ₃) ₂ | NHCH ₂ (2,6Cl-C ₆ H ₃) |
| CH ₂ O(4Cl-C ₆ H ₄) | O(C ₆ H ₅) | NH(C ₆ H ₅) |
| CH ₂ O(2,4Cl-C ₆ H ₃) | O(3CF ₃ -C ₆ H ₄) | NH(3CF ₃ -C ₆ H ₄) |
| CH ₂ SCH ₂ CH ₃ | O(2Cl-C ₆ H ₄) | NH(2Cl-C ₆ H ₄) |
| CH ₂ SCH ₂ CH ₂ CH ₃ | O(4SCH ₃ -C ₆ H ₄) | NH(3CH ₃ -C ₆ H ₄) |
| CH ₂ SCH ₂ CH(CH ₃) ₂ | O(2,4Cl-C ₆ H ₃) | NH(2,4Cl-C ₆ H ₃) |
| CH ₂ SCH ₂ (C ₆ H ₅) | SCH ₂ CH ₂ CH ₃ | NH(2,6Cl-C ₆ H ₃) |
| CH ₂ SCH ₂ (3CF ₃ -C ₆ H ₄) | SCH ₂ (CH ₂) ₂ CH ₃ | N(CH ₃)(3CF ₃ -C ₆ H ₄) |
| CH ₂ S(2Cl-C ₆ H ₄) | SCH ₂ (CH ₂) ₃ CH ₃ | N(CH ₃)CH ₂ CH ₂ CH ₃ |
| CH ₂ S(4CH ₃ -C ₆ H ₄) | SCH ₂ (CH ₂) ₅ CH ₃ | N(CH ₂) ₄ |
| CH ₂ S(2,4Cl-C ₆ H ₃) | SCH ₂ (C ₆ H ₅) | N(CH ₂) ₅ |
| CH ₂ S(3SCH ₃ -C ₆ H ₄) | SCH ₂ (3SCH ₃ -C ₆ H ₄) | N(CH ₂) ₆ |
| CH ₂ S(2,6Cl-C ₆ H ₃) | SCH ₂ (2OCH ₃ -C ₆ H ₄) | N(CH ₂ CH ₂ -OCH ₂ CH ₂) ₂ |
| CH ₂ S(C ₆ H ₅) | SCH ₂ (2Cl-C ₆ H ₄) | CH ₂ CO ₂ CH ₃ |
| CH ₂ S(3CF ₃ -C ₆ H ₄) | SCH ₂ (2,4-C ₆ H ₃) | CH ₂ CH ₂ CO ₂ CH ₂ CH ₃ |
| CH ₂ S(2Cl-C ₆ H ₄) | SCH ₂ (4CF ₃ -C ₆ H ₄) | CH ₂ CH ₂ CO ₂ CH ₃ |
| CH ₂ S(4CH ₃ -C ₆ H ₄) | S(CH ₃) ₃ | CH ₂ CH ₂ OCH ₂ CH ₃ |
| CH ₂ S(2,6Cl-C ₆ H ₃) | SCH ₂ CH(CH ₃) ₂ | CH ₂ CH ₂ SCH ₂ CH ₃ |
| CH ₂ S(2,4Cl-C ₆ H ₃) | S(C ₆ H ₅) | CH ₂ CH ₂ -NHCH ₂ CH ₃ |
| CH ₂ NHCH ₂ CH ₃ | S(3CF ₃ -C ₆ H ₄) | CH ₂ CH ₂ N(CH ₃)CH ₂ CH ₃ |
| CH ₂ NHCH ₂ CH ₂ CH ₃ | S(2Cl-C ₆ H ₄) | CH=CH(CH ₃) ₂ |
| CH ₂ NHCH ₂ C(C ₆ H ₅) | S(4OCH ₃ -C ₆ H ₄) | CH ₂ CH ₂ CH=CH ₂ |
| CH ₂ NHCH ₂ CH(CH ₃) ₂ | S(2,4Cl-C ₆ H ₃) | CH ₂ CH=CH-CH ₃ |
| CH ₂ NHCH ₂ (3CF ₃ -C ₆ H ₄) | S(2,6F-C ₆ H ₃) | CH=CH-CH ₂ CH ₂ -Cl |
| CH ₂ NHCH ₂ (2Cl-C ₆ H ₄) | 2(3CH ₃ -C ₆ H ₄) | CH ₂ CH ₂ CH-ClCH ₂ -Cl |
| CH ₂ NH(C ₆ H ₅) | NHCH ₂ CH ₂ CH ₃ | C ₆ H ₅ |
| CH ₂ NH(2Cl-C ₆ H ₄) | NHCH ₂ (CH ₂) ₂ CH ₃ | 3CF ₃ -C ₆ H ₄ |
| CH ₂ N(CH ₃)(2Cl-C ₆ H ₄) | NHCH ₂ (CH ₂) ₄ CH ₃ | 2Cl-C ₆ H ₄ |
| OCH ₂ CH ₂ CH ₃ | NHCH ₂ (CH ₂) ₅ CH ₃ | 3CH ₃ -C ₆ H ₄ |

| | | |
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| 3OCH ₃ -C ₆ H ₄ | R ¹ =OCF ₃ , R ² =C≡N | CH ₂ OCH ₂ (3CF ₃ -C ₆ H ₄) |
| 2CF ₃ -C ₆ H ₄ | R ³ | CH ₂ OCH ₂ (2Cl-C ₆ H ₄) |
| 2, 4Cl-C ₆ H ₃ | (CH ₂) ₂ CH ₃ | CH ₂ OCH ₂ (3SCH ₃ -C ₆ H ₄) |
| 2, 6Cl-C ₆ H ₃ | (CH ₂) ₃ CH ₃ | CH ₂ OCH ₂ (4Cl-C ₆ H ₄) |
| 2SCH ₃ -C ₆ H ₄ | (CH ₂) ₄ CH ₃ | CH ₂ OCH ₂ (2, 4F-C ₆ H ₃) |
| CH ₂ (C ₆ H ₅) | (CH ₂) ₅ CH ₃ | CH ₂ CH ₂ OCH ₂ CH ₂ CH ₃ |
| CH ₂ (3CF ₃ -C ₆ H ₄) | (CH ₂) ₆ CH ₃ | CH ₂ O (C ₆ H ₅) |
| CH ₂ (2Cl-C ₆ H ₄) | (CH ₂) ₇ CH ₃ | CH ₂ O (3CF ₃ -C ₆ H ₄) |
| CH ₂ (4Cl-C ₆ H ₄) | (CH ₂) ₈ CH ₃ | CH ₂ O (4CF ₃ -C ₆ H ₄) |
| CH ₂ (2, 4Cl-C ₆ H ₃) | (CH ₂) ₉ CH ₃ | CH ₂ O (2Cl-C ₆ H ₄) |
| CH ₂ (3SCH ₃ -C ₆ H ₄) | CH ₂ CH (CH ₃) ₂ | CH ₂ O (3SCH ₃ -C ₆ H ₄) |
| CH ₂ (3OCH ₃ -C ₆ H ₄) | CH ₂ CH ₂ CH (CH ₃) ₂ | CH ₂ O (2CH ₃ -C ₆ H ₄) |
| CH ₂ (3Cl-C ₆ H ₄) | CH ₂ CH ₂ CH ₂ CH (CH ₃) ₂ | CH ₂ O (4Cl-C ₆ H ₄) |
| CH ₂ (2, 6F-C ₆ H ₃) | CH ₂ CH ₂ CH (CH ₃) CH ₂ CH ₂ CH ₃ | CH ₂ O (2, 4Cl-C ₆ H ₃) |
| CH ₂ (2, 6Cl-C ₆ H ₃) | CH ₂ CH (CH ₃) CH ₂ CH ₂ CH ₃ | CH ₂ SCH ₂ CH ₃ |
| CH ₂ (3, 4F-C ₆ H ₃) | CH ₂ CH (CH ₂ CH ₃) CH ₂ CH ₃ | CH ₂ SCH ₂ CH ₂ CH ₃ |
| CH ₂ -Si (CH ₃) ₃ | CH ₂ CH ₂ CH ₂ OCH ₂ CH ₃ | CH ₂ SCH ₂ CH (CH ₃) ₂ |
| ON=C (CH ₃) ₂ | CH ₂ CH ₂ CH ₂ CH ₂ OCH ₃ | CH ₂ SCH ₂ (C ₆ H ₅) |
| ON=CH (C ₆ H ₅) | CH ₂ CH ₂ CH ₂ -S-CH ₂ CH ₃ | CH ₂ SCH ₂ (3CF ₃ -C ₆ H ₄) |
| ON=C (CH ₃) C ₆ H ₅ | CH ₂ CH ₂ CH ₂ CH ₂ SCH ₃ | CH ₂ S (2Cl-C ₆ H ₄) |
| OCH ₂ (2, 6-Cl-C ₆ H ₃) | CH ₂ CH ₂ CH ₂ NHCH ₂ CH ₃ | CH ₂ S (4CH ₃ -C ₆ H ₄) |
| OCH ₂ (C=CH ₂) CH ₃ | CH ₂ CF ₂ CH (CH ₃) ₂ | CH ₂ S (2, 4Cl-C ₆ H ₃) |
| OCH ₂ -CH  | CH ₂ CH ₂ CH ₂ CF ₂ CH ₃ | CH ₂ S (3SCH ₃ -C ₆ H ₄) |
| 4F-C ₆ H ₄ | CH ₂ -cyclopropyl | CH ₂ S (2, 6Cl-C ₆ H ₃) |
| 4Cl-C ₆ H ₄ | CH ₂ -cyclobutyl | CH ₂ S (C ₆ H ₅) |
| 4Br-C ₆ H ₄ | CH ₂ -cyclopentyl | CH ₂ S (3CF ₃ -C ₆ H ₄) |
| 2-pyridyl | CH ₂ -cyclohexyl | CH ₂ S (2Cl-C ₆ H ₄) |
| 2-furyl | cyclopropyl | CH ₂ S (4CH ₃ -C ₆ H ₄) |
| 2-thiazolyl | cyclobutyl | CH ₂ S (2, 6Cl-C ₆ H ₃) |
| 2-imidazolyl | cyclopentyl | CH ₂ S (2, 4Cl-C ₆ H ₃) |
| O-2 (3CF ₃ -C ₅ H ₃ N) | cyclohexyl | CH ₂ NHCH ₂ CH ₃ |
| O-2Cl-6CF ₃ -C ₆ H ₃ | CH ₂ OCH ₂ CH ₃ | CH ₂ NHCH ₂ CH ₂ CH ₃ |
| | CH ₂ OCH ₂ CH ₂ CH ₃ | CH ₂ NHCH ₂ C (C ₆ H ₅) |
| | CH ₂ OCH ₂ CH (CH ₃) ₂ | CH ₂ NHCH ₂ CH (CH ₃) ₂ |
| | CH ₂ OCH ₂ (C ₆ H ₅) | CH ₂ NHCH ₂ (3CF ₃ -C ₆ H ₄) |

| | | |
|---|---|---|
| $\text{CH}_2\text{NHCH}_2(2\text{Cl}-\text{C}_6\text{H}_4)$ | $2(3\text{CH}_3-\text{C}_6\text{H}_4)$ | $\text{CH}_2\text{CH}_2\text{CH}-\text{ClCH}_2-\text{Cl}$ |
| $\text{CH}_2\text{NH}(\text{C}_6\text{H}_5)$ | $\text{NHCH}_2\text{CH}_2\text{CH}_3$ | C_6H_5 |
| $\text{CH}_2\text{NH}(2\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{NHCH}_2(\text{CH}_2)_2\text{CH}_3$ | $3\text{CF}_3-\text{C}_6\text{H}_4$ |
| $\text{CH}_2\text{N}(\text{CH}_3)(2\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{NHCH}_2(\text{CH}_2)_4\text{CH}_3$ | $2\text{Cl}-\text{C}_6\text{H}_4$ |
| $\text{OCH}_2\text{CH}_2\text{CH}_3$ | $\text{NHCH}_2(\text{CH}_2)_5\text{CH}_3$ | $3\text{CH}_3-\text{C}_6\text{H}_4$ |
| $\text{OCH}_2(\text{CH}_2)_2\text{CH}_3$ | $\text{NHCH}_2\text{CH}(\text{CH}_3)_2$ | $3\text{OCH}_3-\text{C}_6\text{H}_4$ |
| $\text{OCH}_2(\text{CH}_2)_3\text{CH}_3$ | $\text{NHCH}_2(\text{C}_6\text{H}_5)$ | $2\text{CF}_3-\text{C}_6\text{H}_4$ |
| $\text{OCH}_2(\text{CH}_2)_5\text{CH}_3$ | $\text{NHCH}_2(3\text{CF}_3-\text{C}_6\text{H}_4)$ | $2,4\text{Cl}-\text{C}_6\text{H}_3$ |
| $\text{OCH}_2\text{C}(\text{C}_6\text{H}_5)$ | $\text{NHCH}_2(2\text{Cl}-\text{C}_6\text{H}_4)$ | $2,6\text{Cl}-\text{C}_6\text{H}_3$ |
| $\text{OCH}_2(3\text{CF}_3-\text{C}_6\text{H}_4)$ | $\text{NHCH}_2(4\text{CH}_3-\text{C}_6\text{H}_4)$ | $2\text{SCH}_3-\text{C}_6\text{H}_4$ |
| $\text{OCH}_2(2\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{NHCH}_2(2,4\text{Cl}-\text{C}_6\text{H}_3)$ | $\text{CH}_2(\text{C}_6\text{H}_5)$ |
| $\text{OCH}_2\text{CH}(\text{CH}_3)_2$ | $\text{NHCH}_2(2,6\text{Cl}-\text{C}_6\text{H}_3)$ | $\text{CH}_2(3\text{CF}_3-\text{C}_6\text{H}_4)$ |
| $\text{O}(\text{C}_6\text{H}_5)$ | $\text{NH}(\text{C}_6\text{H}_5)$ | $\text{CH}_2(2\text{Cl}-\text{C}_6\text{H}_4)$ |
| $\text{O}(3\text{CF}_3-\text{C}_6\text{H}_4)$ | $\text{NH}(3\text{CF}_3-\text{C}_6\text{H}_4)$ | $\text{CH}_2(4\text{Cl}-\text{C}_6\text{H}_4)$ |
| $\text{O}(2\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{NH}(2\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{CH}_2(2,4\text{Cl}-\text{C}_6\text{H}_3)$ |
| $\text{O}(4\text{SCH}_3-\text{C}_6\text{H}_4)$ | $\text{NH}(3\text{CH}_3-\text{C}_6\text{H}_4)$ | $\text{CH}_2(3\text{SCH}_3-\text{C}_6\text{H}_4)$ |
| $\text{O}(2,4\text{Cl}-\text{C}_6\text{H}_3)$ | $\text{NH}(2,4\text{Cl}-\text{C}_6\text{H}_3)$ | $\text{CH}_2(3\text{OCH}_3-\text{C}_6\text{H}_4)$ |
| $\text{SCH}_2\text{CH}_2\text{CH}_3$ | $\text{NH}(2,6\text{Cl}-\text{C}_6\text{H}_3)$ | $\text{CH}_2(3\text{Cl}-\text{C}_6\text{H}_4)$ |
| $\text{SCH}_2(\text{CH}_2)_2\text{CH}_3$ | $\text{N}(\text{CH}_3)(3\text{CF}_3-\text{C}_6\text{H}_4)$ | $\text{CH}_2(2,6\text{F}-\text{C}_6\text{H}_3)$ |
| $\text{SCH}_2(\text{CH}_2)_3\text{CH}_3$ | $\text{N}(\text{CH}_3)\text{CH}_2\text{CH}_2\text{CH}_3$ | $\text{CH}_2(2,6\text{Cl}-\text{C}_6\text{H}_3)$ |
| $\text{SCH}_2(\text{CH}_2)_5\text{CH}_3$ | $\text{N}(\text{CH}_2)_4$ | $\text{CH}_2(3,4\text{F}-\text{C}_6\text{H}_3)$ |
| $\text{SCH}_2(\text{C}_6\text{H}_5)$ | $\text{N}(\text{CH}_2)_5$ | $\text{CH}_2-\text{Si}(\text{CH}_3)_3$ |
| $\text{SCH}_2(3\text{SCH}_3-\text{C}_6\text{H}_4)$ | $\text{N}(\text{CH}_2)_6$ | $\text{ON}=\text{C}(\text{CH}_3)_2$ |
| $\text{SCH}_2(2\text{OCH}_3-\text{C}_6\text{H}_4)$ | $\text{N}(\text{CH}_2\text{CH}_2-\text{OCH}_2\text{CH}_2)_2$ | $\text{ON}=\text{CH}(\text{C}_6\text{H}_5)$ |
| $\text{SCH}_2(2\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{CH}_2\text{CO}_2\text{CH}_3$ | $\text{ON}=\text{C}(\text{CH}_3)\text{C}_6\text{H}_5$ |
| $\text{SCH}_2(2,4-\text{C}_6\text{H}_3)$ | $\text{CH}_2\text{CH}_2\text{CO}_2\text{CH}_2\text{CH}_3$ | $\text{OCH}_2(2,6-\text{Cl}-\text{C}_6\text{H}_3)$ |
| $\text{SCH}_2(4\text{CF}_3-\text{C}_6\text{H}_4)$ | $\text{CH}_2\text{CH}_2\text{CO}_2\text{CH}_3$ | $\text{OCH}_2(\text{C}=\text{CH}_2)\text{CH}_3$ |
| $\text{S}(\text{CH}_3)_3$ | $\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_3$ | $\text{OCH}_2-\text{CH} \begin{array}{l} \nearrow \text{CH}_2 \\ \downarrow \\ \text{CH}_2 \end{array}$ |
| $\text{SCH}_2\text{CH}(\text{CH}_3)_2$ | $\text{CH}_2\text{CH}_2\text{SCH}_2\text{CH}_3$ | $4\text{F}-\text{C}_6\text{H}_4$ |
| $\text{S}(\text{C}_6\text{H}_5)$ | $\text{CH}_2\text{CH}_2-\text{NHCH}_2\text{CH}_3$ | $4\text{Cl}-\text{C}_6\text{H}_4$ |
| $\text{S}(3\text{CF}_3-\text{C}_6\text{H}_4)$ | $\text{CH}_2\text{CH}_2\text{N}(\text{CH}_3)\text{CH}_2\text{CH}_3$ | $4\text{Br}-\text{C}_6\text{H}_4$ |
| $\text{S}(2\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{CH}=\text{CH}(\text{CH}_3)_2$ | 2-pyridyl |
| $\text{S}(4\text{OCH}_3-\text{C}_6\text{H}_4)$ | $\text{CH}_2\text{CH}_2\text{CH}=\text{CH}_2$ | 2-furyl |
| $\text{S}(2,4\text{Cl}-\text{C}_6\text{H}_3)$ | $\text{CH}_2\text{CH}=\text{CH}-\text{CH}_3$ | 2-thiazolyl |
| $\text{S}(2,6\text{F}-\text{C}_6\text{H}_3)$ | $\text{CH}=\text{CH}-\text{CH}_2\text{CH}_2-\text{Cl}$ | |


| | | |
|--|--|--|
| 2-imidazolyl | CH ₂ OCH ₂ CH ₃ | CH ₂ NHCH ₂ CH ₂ CH ₃ |
| O-2 (3CF ₃ -C ₅ H ₃ N) | CH ₂ OCH ₂ CH ₂ CH ₃ | CH ₂ NHCH ₂ C (C ₆ H ₅) |
| O-2Cl-6CF ₃ -C ₆ H ₃ | CH ₂ OCH ₂ CH (CH ₃) ₂ | CH ₂ NHCH ₂ CH (CH ₃) ₂ |
| | CH ₂ OCH ₂ (C ₆ H ₅) | CH ₂ NHCH ₂ (3CF ₃ -C ₆ H ₄) |
| R ¹ =OCF ₂ H, R ² =C≡N | CH ₂ OCH ₂ (3CF ₃ -C ₆ H ₄) | CH ₂ NHCH ₂ (2Cl-C ₆ H ₄) |
| R ³ | CH ₂ OCH ₂ (2Cl-C ₆ H ₄) | CH ₂ NH (C ₆ H ₅) |
| (CH ₂) ₂ CH ₃ | CH ₂ OCH ₂ (3SCH ₃ -C ₆ H ₄) | CH ₂ NH (2Cl-C ₆ H ₄) |
| (CH ₂) ₃ CH ₃ | CH ₂ OCH ₂ (4Cl-C ₆ H ₄) | CH ₂ N (CH ₃) (2Cl-C ₆ H ₄) |
| (CH ₂) ₄ CH ₃ | CH ₂ OCH ₂ (2, 4F-C ₆ H ₃) | OCH ₂ CH ₂ CH ₃ |
| (CH ₂) ₅ CH ₃ | CH ₂ CH ₂ OCH ₂ CH ₂ CH ₃ | OCH ₂ (CH ₂) ₂ CH ₃ |
| (CH ₂) ₆ CH ₃ | CH ₂ O (C ₆ H ₅) | OCH ₂ (CH ₂) ₃ CH ₃ |
| (CH ₂) ₇ CH ₃ | CH ₂ O (3CF ₃ -C ₆ H ₄) | OCH ₂ (CH ₂) ₅ CH ₃ |
| (CH ₂) ₈ CH ₃ | CH ₂ O (4CF ₃ -C ₆ H ₄) | OCH ₂ C (C ₆ H ₅) |
| (CH ₂) ₉ CH ₃ | CH ₂ O (2Cl-C ₆ H ₄) | OCH ₂ (3CF ₃ -C ₆ H ₄) |
| CH ₂ CH (CH ₃) ₂ | CH ₂ O (3SCH ₃ -C ₆ H ₄) | OCH ₂ (2Cl-C ₆ H ₄) |
| CH ₂ CH ₂ CH (CH ₃) ₂ | CH ₂ O (2CH ₃ -C ₆ H ₄) | OCH ₂ CH (CH ₃) ₂ |
| CH ₂ CH ₂ CH ₂ CH (CH ₃) ₂ | CH ₂ O (4Cl-C ₆ H ₄) | O (C ₆ H ₅) |
| CH ₂ CH ₂ CH (CH ₃)CH ₂ CH ₂ CH ₃ | CH ₂ O (2, 4Cl-C ₆ H ₃) | O (3CF ₃ -C ₆ H ₄) |
| CH ₂ CH (CH ₃)CH ₂ CH ₂ CH ₃ | CH ₂ SCH ₂ CH ₃ | O (2Cl-C ₆ H ₄) |
| CH ₂ CH (CH ₂ CH ₃)CH ₂ CH ₃ | CH ₂ SCH ₂ CH ₂ CH ₃ | O (4SCH ₃ -C ₆ H ₄) |
| CH ₂ CH ₂ CH ₂ OCH ₂ CH ₃ | CH ₂ SCH ₂ CH (CH ₃) ₂ | O (2, 4Cl-C ₆ H ₃) |
| CH ₂ CH ₂ CH ₂ CH ₂ OCH ₃ | CH ₂ SCH ₂ (C ₆ H ₅) | SCH ₂ CH ₂ CH ₃ |
| CH ₂ CH ₂ CH ₂ -S-CH ₂ CH ₃ | CH ₂ SCH ₂ (3CF ₃ -C ₆ H ₄) | SCH ₂ (CH ₂) ₂ CH ₃ |
| CH ₂ CH ₂ CH ₂ CH ₂ SCH ₃ | CH ₂ S (2Cl-C ₆ H ₄) | SCH ₂ (CH ₂) ₃ CH ₃ |
| CH ₂ CH ₂ CH ₂ NHCH ₂ CH ₃ | CH ₂ S (4CH ₃ -C ₆ H ₄) | SCH ₂ (CH ₂) ₅ CH ₃ |
| CH ₂ CF ₂ CH (CH ₃) ₂ | CH ₂ S (2, 4Cl-C ₆ H ₃) | SCH ₂ (C ₆ H ₅) |
| CH ₂ CH ₂ CH ₂ CF ₂ CH ₃ | CH ₂ S (3SCH ₃ -C ₆ H ₄) | SCH ₂ (3SCH ₃ -C ₆ H ₄) |
| CH ₂ -cyclopropyl | CH ₂ S (2, 6Cl-C ₆ H ₃) | SCH ₂ (2OCH ₃ -C ₆ H ₄) |
| CH ₂ -cyclobutyl | CH ₂ S (C ₆ H ₅) | SCH ₂ (2Cl-C ₆ H ₄) |
| CH ₂ -cyclopentyl | CH ₂ S (3CF ₃ -C ₆ H ₄) | SCH ₂ (2, 4-C ₆ H ₃) |
| CH ₂ -cyclohexyl | CH ₂ S (2Cl-C ₆ H ₄) | SCH ₂ (4CF ₃ -C ₆ H ₄) |
| cyclopropyl | CH ₂ S (4CH ₃ -C ₆ H ₄) | S (CH ₃) ₃ |
| cyclobutyl | CH ₂ S (2, 6Cl-C ₆ H ₃) | SCH ₂ CH (CH ₃) ₂ |
| cyclopentyl | CH ₂ S (2, 4Cl-C ₆ H ₃) | S (C ₆ H ₅) |
| cyclohexyl | CH ₂ NHCH ₂ CH ₃ | S (3CF ₃ -C ₆ H ₄) |

| | | |
|--|--|---|
| S (2Cl-C ₆ H ₄) | CH=CH (CH ₃) ₂ | 4Br-C ₆ H ₄ |
| S (4OCH ₃ -C ₆ H ₄) | CH ₂ CH ₂ CH=CH ₂ | 2-pyridyl |
| S (2, 4Cl-C ₆ H ₃) | CH ₂ CH=CH-CH ₃ | 2-furyl |
| S (2, 6F-C ₆ H ₃) | CH=CH-CH ₂ CH ₂ -Cl | 2-thiazolyl |
| 2 (3CH ₃ -C ₆ H ₄) | CH ₂ CH ₂ CH-ClCH ₂ -Cl | 2-imidazolyl |
| NHCH ₂ CH ₂ CH ₃ | C ₆ H ₅ | O-2 (3CF ₃ -C ₅ H ₃ N) |
| NHCH ₂ (CH ₂) ₂ CH ₃ | 3CF ₃ -C ₆ H ₄ | O-2Cl-6CF ₃ -C ₆ H ₃ |
| NHCH ₂ (CH ₂) ₄ CH ₃ | 2Cl-C ₆ H ₄ | |
| NHCH ₂ (CH ₂) ₅ CH ₃ | 3CH ₃ -C ₆ H ₄ | R ¹ =NO ₂ , R ² =C≡N |
| NHCH ₂ CH (CH ₃) ₂ | 3OCH ₃ -C ₆ H ₄ | R ³ |
| NHCH ₂ (C ₆ H ₅) | 2CF ₃ -C ₆ H ₄ | (CH ₂) ₂ CH ₃ |
| NHCH ₂ (3CF ₃ -C ₆ H ₄) | 2, 4Cl-C ₆ H ₃ | (CH ₂) ₃ CH ₃ |
| NHCH ₂ (2Cl-C ₆ H ₄) | 2, 6Cl-C ₆ H ₃ | (CH ₂) ₄ CH ₃ |
| NHCH ₂ (4CH ₃ -C ₆ H ₄) | 2SCH ₃ -C ₆ H ₄ | (CH ₂) ₅ CH ₃ |
| NHCH ₂ (2, 4Cl-C ₆ H ₃) | CH ₂ (C ₆ H ₅) | (CH ₂) ₆ CH ₃ |
| NHCH ₂ (2, 6Cl-C ₆ H ₃) | CH ₂ (3CF ₃ -C ₆ H ₄) | (CH ₂) ₇ CH ₃ |
| NH (C ₆ H ₅) | CH ₂ (2Cl-C ₆ H ₄) | (CH ₂) ₈ CH ₃ |
| NH (3CF ₃ -C ₆ H ₄) | CH ₂ (4Cl-C ₆ H ₄) | (CH ₂) ₉ CH ₃ |
| NH (2Cl-C ₆ H ₄) | CH ₂ (2, 4Cl-C ₆ H ₃) | CH ₂ CH (CH ₃) ₂ |
| NH (3CH ₃ -C ₆ H ₄) | CH ₂ (3SCH ₃ -C ₆ H ₄) | CH ₂ CH ₂ CH (CH ₃) ₂ |
| NH (2, 4Cl-C ₆ H ₃) | CH ₂ (3OCH ₃ -C ₆ H ₄) | CH ₂ CH ₂ CH ₂ CH (CH ₃) ₂ |
| NH (2, 6Cl-C ₆ H ₃) | CH ₂ (3Cl-C ₆ H ₄) | CH ₂ CH ₂ CH (CH ₃) CH ₂ CH ₂ CH ₃ |
| N (CH ₃) (3CF ₃ -C ₆ H ₄) | CH ₂ (2, 6F-C ₆ H ₃) | CH ₂ CH (CH ₃) CH ₂ CH ₂ CH ₃ |
| N (CH ₃) CH ₂ CH ₂ CH ₃ | CH ₂ (2, 6Cl-C ₆ H ₃) | CH ₂ CH (CH ₂ CH ₃) CH ₂ CH ₃ |
| N (CH ₂) ₄ | CH ₂ (3, 4F-C ₆ H ₃) | CH ₂ CH ₂ CH ₂ OCH ₂ CH ₃ |
| N (CH ₂) ₅ | CH ₂ -Si (CH ₃) ₃ | CH ₂ CH ₂ CH ₂ CH ₂ OCH ₃ |
| N (CH ₂) ₆ | ON=C (CH ₃) ₂ | CH ₂ CH ₂ CH ₂ -S-CH ₂ CH ₃ |
| N (CH ₂ CH ₂ -OCH ₂ CH ₂) ₂ | ON=CH (C ₆ H ₅) | CH ₂ CH ₂ CH ₂ CH ₂ SCH ₃ |
| CH ₂ CO ₂ CH ₃ | ON=C (CH ₃) C ₆ H ₅ | CH ₂ CH ₂ CH ₂ NHCH ₂ CH ₃ |
| CH ₂ CH ₂ CO ₂ CH ₂ CH ₃ | OCH ₂ (2, 6-Cl-C ₆ H ₃) | CH ₂ CF ₂ CH (CH ₃) ₂ |
| CH ₂ CH ₂ CO ₂ CH ₃ | OCH ₂ (C=CH ₂) CH ₃ | CH ₂ CH ₂ CH ₂ CF ₂ CH ₃ |
| CH ₂ CH ₂ OCH ₂ CH ₃ | OCH ₂ -CH  | CH ₂ -cyclopropyl |
| CH ₂ CH ₂ SCH ₂ CH ₃ | | CH ₂ -cyclobutyl |
| CH ₂ CH ₂ -NHCH ₂ CH ₃ | 4F-C ₆ H ₄ | CH ₂ -cyclopentyl |
| CH ₂ CH ₂ N (CH ₃) CH ₂ CH ₃ | 4Cl-C ₆ H ₄ | CH ₂ -cyclohexyl |

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| cyclopropyl | CH ₂ S (4CH ₃ -C ₆ H ₄) | S (CH ₃) ₃ |
| cyclobutyl | CH ₂ S (2, 6Cl-C ₆ H ₃) | SCH ₂ CH (CH ₃) ₂ |
| cyclopentyl | CH ₂ S (2, 4Cl-C ₆ H ₃) | S (C ₆ H ₅) |
| cyclohexyl | CH ₂ NHCH ₂ CH ₃ | S (3CF ₃ -C ₆ H ₄) |
| CH ₂ OCH ₂ CH ₃ | CH ₂ NHCH ₂ CH ₂ CH ₃ | S (2Cl-C ₆ H ₄) |
| CH ₂ OCH ₂ CH ₂ CH ₃ | CH ₂ NHCH ₂ C (C ₆ H ₅) | S (4OCH ₃ -C ₆ H ₄) |
| CH ₂ OCH ₂ CH (CH ₃) ₂ | CH ₂ NHCH ₂ CH (CH ₃) ₂ | S (2, 4Cl-C ₆ H ₃) |
| CH ₂ OCH ₂ (C ₆ H ₅) | CH ₂ NHCH ₂ (3CF ₃ -C ₆ H ₄) | S (2, 6F-C ₆ H ₃) |
| CH ₂ OCH ₂ (3CF ₃ -C ₆ H ₄) | CH ₂ NHCH ₂ (2Cl-C ₆ H ₄) | 2 (3CH ₃ -C ₆ H ₄) |
| CH ₂ OCH ₂ (2Cl-C ₆ H ₄) | CH ₂ NH (C ₆ H ₅) | NHCH ₂ CH ₂ CH ₃ |
| CH ₂ OCH ₂ (3SCH ₃ -C ₆ H ₄) | CH ₂ NH (2Cl-C ₆ H ₄) | NHCH ₂ (CH ₂) ₂ CH ₃ |
| CH ₂ OCH ₂ (4Cl-C ₆ H ₄) | CH ₂ N (CH ₃) (2Cl-C ₆ H ₄) | NHCH ₂ (CH ₂) ₄ CH ₃ |
| CH ₂ OCH ₂ (2, 4F-C ₆ H ₃) | OCH ₂ CH ₂ CH ₃ | NHCH ₂ (CH ₂) ₅ CH ₃ |
| CH ₂ CH ₂ OCH ₂ CH ₂ CH ₃ | OCH ₂ (CH ₂) ₂ CH ₃ | NHCH ₂ CH (CH ₃) ₂ |
| CH ₂ O (C ₆ H ₅) | OCH ₂ (CH ₂) ₃ CH ₃ | NHCH ₂ (C ₆ H ₅) |
| CH ₂ O (3CF ₃ -C ₆ H ₄) | OCH ₂ (CH ₂) ₅ CH ₃ | NHCH ₂ (3CF ₃ -C ₆ H ₄) |
| CH ₂ O (4CF ₃ -C ₆ H ₄) | OCH ₂ C (C ₆ H ₅) | NHCH ₂ (2Cl-C ₆ H ₄) |
| CH ₂ O (2Cl-C ₆ H ₄) | OCH ₂ (3CF ₃ -C ₆ H ₄) | NHCH ₂ (4CH ₃ -C ₆ H ₄) |
| CH ₂ O (3SCH ₃ -C ₆ H ₄) | OCH ₂ (2Cl-C ₆ H ₄) | NHCH ₂ (2, 4Cl-C ₆ H ₃) |
| CH ₂ O (2CH ₃ -C ₆ H ₄) | OCH ₂ CH (CH ₃) ₂ | NHCH ₂ (2, 6Cl-C ₆ H ₃) |
| CH ₂ O (4Cl-C ₆ H ₄) | O (C ₆ H ₅) | NH (C ₆ H ₅) |
| CH ₂ O (2, 4Cl-C ₆ H ₃) | O (3CF ₃ -C ₆ H ₄) | NH (3CF ₃ -C ₆ H ₄) |
| CH ₂ SCH ₂ CH ₃ | O (2Cl-C ₆ H ₄) | NH (2Cl-C ₆ H ₄) |
| CH ₂ SCH ₂ CH ₂ CH ₃ | O (4SCH ₃ -C ₆ H ₄) | NH (3CH ₃ -C ₆ H ₄) |
| CH ₂ SCH ₂ CH (CH ₃) ₂ | O (2, 4Cl-C ₆ H ₃) | NH (2, 4Cl-C ₆ H ₃) |
| CH ₂ SCH ₂ (C ₆ H ₅) | SCH ₂ CH ₂ CH ₃ | NH (2, 6Cl-C ₆ H ₃) |
| CH ₂ SCH ₂ (3CF ₃ -C ₆ H ₄) | SCH ₂ (CH ₂) ₂ CH ₃ | N (CH ₃) (3CF ₃ -C ₆ H ₄) |
| CH ₂ S (2Cl-C ₆ H ₄) | SCH ₂ (CH ₂) ₃ CH ₃ | N (CH ₃) CH ₂ CH ₂ CH ₃ |
| CH ₂ S (4CH ₃ -C ₆ H ₄) | SCH ₂ (CH ₂) ₅ CH ₃ | N (CH ₂) ₄ |
| CH ₂ S (2, 4Cl-C ₆ H ₃) | SCH ₂ (C ₆ H ₅) | N (CH ₂) ₅ |
| CH ₂ S (3SCH ₃ -C ₆ H ₄) | SCH ₂ (3SCH ₃ -C ₆ H ₄) | N (CH ₂) ₆ |
| CH ₂ S (2, 6Cl-C ₆ H ₃) | SCH ₂ (2OCH ₃ -C ₆ H ₄) | N (CH ₂ CH ₂ -OCH ₂ CH ₂) ₂ |
| CH ₂ S (C ₆ H ₅) | SCH ₂ (2Cl-C ₆ H ₄) | CH ₂ CO ₂ CH ₃ |
| CH ₂ S (3CF ₃ -C ₆ H ₄) | SCH ₂ (2, 4-C ₆ H ₃) | CH ₂ CH ₂ CO ₂ CH ₂ CH ₃ |
| CH ₂ S (2Cl-C ₆ H ₄) | SCH ₂ (4CF ₃ -C ₆ H ₄) | CH ₂ CH ₂ CO ₂ CH ₃ |

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| CH ₂ CH ₂ OCH ₂ CH ₃ | $\text{OCH}_2-\text{CH} \begin{array}{l} \text{CH}_2 \\ \\ \text{CH}_2 \end{array}$ | CH ₂ -cyclopropyl |
| CH ₂ CH ₂ SCH ₂ CH ₃ | | CH ₂ -cyclobutyl |
| CH ₂ CH ₂ -NHCH ₂ CH ₃ | 4F-C ₆ H ₄ | CH ₂ -cyclopentyl |
| CH ₂ CH ₂ N(CH ₃)CH ₂ CH ₃ | 4Cl-C ₆ H ₄ | CH ₂ -cyclohexyl |
| CH=CH(CH ₃) ₂ | 4Br-C ₆ H ₄ | cyclopropyl |
| CH ₂ CH ₂ CH=CH ₂ | 2-pyridyl | cyclobutyl |
| CH ₂ CH=CH-CH ₃ | 2-furyl | cyclopentyl |
| CH=CH-CH ₂ CH ₂ -Cl | 2-thiazolyl | cyclohexyl |
| CH ₂ CH ₂ CH-ClCH ₂ -Cl | 2-imidazolyl | CH ₂ OCH ₂ CH ₃ |
| C ₆ H ₅ | O-2(3CF ₃ -C ₅ H ₃ N) | CH ₂ OCH ₂ CH ₂ CH ₃ |
| 3CF ₃ -C ₆ H ₄ | O-2Cl-6CF ₃ -C ₆ H ₃ | CH ₂ OCH ₂ CH(CH ₃) ₂ |
| 2Cl-C ₆ H ₄ | | CH ₂ OCH ₂ (C ₆ H ₅) |
| 3CH ₃ -C ₆ H ₄ | R ¹ =Cl, R ² =CO ₂ H | CH ₂ OCH ₂ (3CF ₃ -C ₆ H ₄) |
| 3OCH ₃ -C ₆ H ₄ | R ³ | CH ₂ OCH ₂ (2Cl-C ₆ H ₄) |
| 2CF ₃ -C ₆ H ₄ | (CH ₂) ₂ CH ₃ | CH ₂ OCH ₂ (3SCH ₃ -C ₆ H ₄) |
| 2,4Cl-C ₆ H ₃ | (CH ₂) ₃ CH ₃ | CH ₂ OCH ₂ (4Cl-C ₆ H ₄) |
| 2,6Cl-C ₆ H ₃ | (CH ₂) ₄ CH ₃ | CH ₂ OCH ₂ (2,4F-C ₆ H ₃) |
| 2SCH ₃ -C ₆ H ₄ | (CH ₂) ₅ CH ₃ | CH ₂ CH ₂ OCH ₂ CH ₂ CH ₃ |
| CH ₂ (C ₆ H ₅) | (CH ₂) ₆ CH ₃ | CH ₂ O(C ₆ H ₅) |
| CH ₂ (3CF ₃ -C ₆ H ₄) | (CH ₂) ₇ CH ₃ | CH ₂ O(3CF ₃ -C ₆ H ₄) |
| CH ₂ (2Cl-C ₆ H ₄) | (CH ₂) ₈ CH ₃ | CH ₂ O(4CF ₃ -C ₆ H ₄) |
| CH ₂ (4Cl-C ₆ H ₄) | (CH ₂) ₉ CH ₃ | CH ₂ O(2Cl-C ₆ H ₄) |
| CH ₂ (2,4Cl-C ₆ H ₃) | CH ₂ CH(CH ₃) ₂ | CH ₂ O(3SCH ₃ -C ₆ H ₄) |
| CH ₂ (3SCH ₃ -C ₆ H ₄) | CH ₂ CH ₂ CH(CH ₃) ₂ | CH ₂ O(2CH ₃ -C ₆ H ₄) |
| CH ₂ (3OCH ₃ -C ₆ H ₄) | CH ₂ CH ₂ CH ₂ CH(CH ₃) ₂ | CH ₂ O(4Cl-C ₆ H ₄) |
| CH ₂ (3Cl-C ₆ H ₄) | CH ₂ CH ₂ CH(CH ₃)CH ₂ CH ₂ CH ₃ | CH ₂ O(2,4Cl-C ₆ H ₃) |
| CH ₂ (2,6F-C ₆ H ₃) | CH ₂ CH(CH ₃)CH ₂ CH ₂ CH ₃ | CH ₂ SCH ₂ CH ₃ |
| CH ₂ (2,6Cl-C ₆ H ₃) | CH ₂ CH(CH ₂ CH ₃)CH ₂ CH ₃ | CH ₂ SCH ₂ CH ₂ CH ₃ |
| CH ₂ (3,4F-C ₆ H ₃) | CH ₂ CH ₂ CH ₂ OCH ₂ CH ₃ | CH ₂ SCH ₂ CH(CH ₃) ₂ |
| CH ₂ -Si(CH ₃) ₃ | CH ₂ CH ₂ CH ₂ CH ₂ OCH ₃ | CH ₂ SCH ₂ (C ₆ H ₅) |
| ON=C(CH ₃) ₂ | CH ₂ CH ₂ CH ₂ -S-CH ₂ CH ₃ | CH ₂ SCH ₂ (3CF ₃ -C ₆ H ₄) |
| ON=CH(C ₆ H ₅) | CH ₂ CH ₂ CH ₂ CH ₂ SCH ₃ | CH ₂ S(2Cl-C ₆ H ₄) |
| ON=C(CH ₃)C ₆ H ₅ | CH ₂ CH ₂ CH ₂ NHCH ₂ CH ₃ | CH ₂ S(4CH ₃ -C ₆ H ₄) |
| OCH ₂ (2,6-Cl-C ₆ H ₃) | CH ₂ CF ₂ CH(CH ₃) ₂ | CH ₂ S(2,4Cl-C ₆ H ₃) |
| OCH ₂ (C=CH ₂)CH ₃ | CH ₂ CH ₂ CH ₂ CF ₂ CH ₃ | CH ₂ S(3SCH ₃ -C ₆ H ₄) |

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| CH_2S (2, 6Cl-C ₆ H ₃) | SCH_2 (2OCH ₃ -C ₆ H ₄) | N (CH ₂ CH ₂ -OCH ₂ CH ₂) ₂ |
| CH_2S (C ₆ H ₅) | SCH_2 (2Cl-C ₆ H ₄) | $\text{CH}_2\text{CO}_2\text{CH}_3$ |
| CH_2S (3CF ₃ -C ₆ H ₄) | SCH_2 (2, 4-C ₆ H ₃) | $\text{CH}_2\text{CH}_2\text{CO}_2\text{CH}_2\text{CH}_3$ |
| CH_2S (2Cl-C ₆ H ₄) | SCH_2 (4CF ₃ -C ₆ H ₄) | $\text{CH}_2\text{CH}_2\text{CO}_2\text{CH}_3$ |
| CH_2S (4CH ₃ -C ₆ H ₄) | S (CH ₃) ₃ | $\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_3$ |
| CH_2S (2, 6Cl-C ₆ H ₃) | SCH_2CH (CH ₃) ₂ | $\text{CH}_2\text{CH}_2\text{SCH}_2\text{CH}_3$ |
| CH_2S (2, 4Cl-C ₆ H ₃) | S (C ₆ H ₅) | $\text{CH}_2\text{CH}_2\text{-NHCH}_2\text{CH}_3$ |
| $\text{CH}_2\text{NHCH}_2\text{CH}_3$ | S (3CF ₃ -C ₆ H ₄) | $\text{CH}_2\text{CH}_2\text{N}$ (CH ₃) CH ₂ CH ₃ |
| $\text{CH}_2\text{NHCH}_2\text{CH}_2\text{CH}_3$ | S (2Cl-C ₆ H ₄) | CH=CH (CH ₃) ₂ |
| $\text{CH}_2\text{NHCH}_2\text{C}$ (C ₆ H ₅) | S (4OCH ₃ -C ₆ H ₄) | $\text{CH}_2\text{CH}_2\text{CH=CH}_2$ |
| $\text{CH}_2\text{NHCH}_2\text{CH}$ (CH ₃) ₂ | S (2, 4Cl-C ₆ H ₃) | $\text{CH}_2\text{CH=CH-CH}_3$ |
| CH_2NHCH_2 (3CF ₃ -C ₆ H ₄) | S (2, 6F-C ₆ H ₃) | $\text{CH=CH-CH}_2\text{CH}_2\text{-Cl}$ |
| CH_2NHCH_2 (2Cl-C ₆ H ₄) | 2 (3CH ₃ -C ₆ H ₄) | $\text{CH}_2\text{CH}_2\text{CH-ClCH}_2\text{-Cl}$ |
| CH_2NH (C ₆ H ₅) | $\text{NHCH}_2\text{CH}_2\text{CH}_3$ | C_6H_5 |
| CH_2NH (2Cl-C ₆ H ₄) | NHCH_2 (CH ₂) ₂ CH ₃ | $3\text{CF}_3\text{-C}_6\text{H}_4$ |
| CH_2N (CH ₃) (2Cl-C ₆ H ₄) | NHCH_2 (CH ₂) ₄ CH ₃ | $2\text{Cl-C}_6\text{H}_4$ |
| $\text{OCH}_2\text{CH}_2\text{CH}_3$ | NHCH_2 (CH ₂) ₅ CH ₃ | $3\text{CH}_3\text{-C}_6\text{H}_4$ |
| OCH_2 (CH ₂) ₂ CH ₃ | NHCH_2CH (CH ₃) ₂ | $3\text{OCH}_3\text{-C}_6\text{H}_4$ |
| OCH_2 (CH ₂) ₃ CH ₃ | NHCH_2 (C ₆ H ₅) | $2\text{CF}_3\text{-C}_6\text{H}_4$ |
| OCH_2 (CH ₂) ₅ CH ₃ | NHCH_2 (3CF ₃ -C ₆ H ₄) | $2, 4\text{Cl-C}_6\text{H}_3$ |
| OCH_2C (C ₆ H ₅) | NHCH_2 (2Cl-C ₆ H ₄) | $2, 6\text{Cl-C}_6\text{H}_3$ |
| OCH_2 (3CF ₃ -C ₆ H ₄) | NHCH_2 (4CH ₃ -C ₆ H ₄) | $2\text{SCH}_3\text{-C}_6\text{H}_4$ |
| OCH_2 (2Cl-C ₆ H ₄) | NHCH_2 (2, 4Cl-C ₆ H ₃) | CH_2 (C ₆ H ₅) |
| OCH_2CH (CH ₃) ₂ | NHCH_2 (2, 6Cl-C ₆ H ₃) | CH_2 (3CF ₃ -C ₆ H ₄) |
| O (C ₆ H ₅) | NH (C ₆ H ₅) | CH_2 (2Cl-C ₆ H ₄) |
| O (3CF ₃ -C ₆ H ₄) | NH (3CF ₃ -C ₆ H ₄) | CH_2 (4Cl-C ₆ H ₄) |
| O (2Cl-C ₆ H ₄) | NH (2Cl-C ₆ H ₄) | CH_2 (2, 4Cl-C ₆ H ₃) |
| O (4SCH ₃ -C ₆ H ₄) | NH (3CH ₃ -C ₆ H ₄) | CH_2 (3SCH ₃ -C ₆ H ₄) |
| O (2, 4Cl-C ₆ H ₃) | NH (2, 4Cl-C ₆ H ₃) | CH_2 (3OCH ₃ -C ₆ H ₄) |
| $\text{SCH}_2\text{CH}_2\text{CH}_3$ | NH (2, 6Cl-C ₆ H ₃) | CH_2 (3Cl-C ₆ H ₄) |
| SCH_2 (CH ₂) ₂ CH ₃ | N (CH ₃) (3CF ₃ -C ₆ H ₄) | CH_2 (2, 6F-C ₆ H ₃) |
| SCH_2 (CH ₂) ₃ CH ₃ | N (CH ₃) CH ₂ CH ₂ CH ₃ | CH_2 (2, 6Cl-C ₆ H ₃) |
| SCH_2 (CH ₂) ₅ CH ₃ | N (CH ₂) ₄ | CH_2 (3, 4F-C ₆ H ₃) |
| SCH_2 (C ₆ H ₅) | N (CH ₂) ₅ | $\text{CH}_2\text{-Si}$ (CH ₃) ₃ |
| SCH_2 (3SCH ₃ -C ₆ H ₄) | N (CH ₂) ₆ | ON=C (CH ₃) ₂ |


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| ON=CH (C ₆ H ₅) | CH ₂ CH ₂ CH ₂ CH ₂ SCH ₃ | CH ₂ S (2Cl-C ₆ H ₄) |
| ON=C (CH ₃) C ₆ H ₅ | CH ₂ CH ₂ CH ₂ NHCH ₂ CH ₃ | CH ₂ S (4CH ₃ -C ₆ H ₄) |
| OCH ₂ (2, 6-Cl-C ₆ H ₃) | CH ₂ CF ₂ CH (CH ₃) ₂ | CH ₂ S (2, 4Cl-C ₆ H ₃) |
| OCH ₂ (C=CH ₂) CH ₃ | CH ₂ CH ₂ CH ₂ CF ₂ CH ₃ | CH ₂ S (3SCH ₃ -C ₆ H ₄) |
| OCH ₂ -CH  | CH ₂ -cyclopropyl | CH ₂ S (2, 6Cl-C ₆ H ₃) |
| 4F-C ₆ H ₄ | CH ₂ -cyclobutyl | CH ₂ S (C ₆ H ₅) |
| 4Cl-C ₆ H ₄ | CH ₂ -cyclopentyl | CH ₂ S (3CF ₃ -C ₆ H ₄) |
| 4Br-C ₆ H ₄ | CH ₂ -cyclohexyl | CH ₂ S (2Cl-C ₆ H ₄) |
| 2-pyridyl | cyclopropyl | CH ₂ S (4CH ₃ -C ₆ H ₄) |
| 2-furyl | cyclobutyl | CH ₂ S (2, 6Cl-C ₆ H ₃) |
| 2-thiazolyl | cyclopentyl | CH ₂ S (2, 4Cl-C ₆ H ₃) |
| 2-imidazolyl | cyclohexyl | CH ₂ NHCH ₂ CH ₃ |
| O-2 (3CF ₃ -C ₅ H ₃ N) | CH ₂ OCH ₂ CH ₃ | CH ₂ NHCH ₂ CH ₂ CH ₃ |
| O-2Cl-6CF ₃ -C ₆ H ₃ | CH ₂ OCH ₂ CH ₂ CH ₃ | CH ₂ NHCH ₂ C (C ₆ H ₅) |
| | CH ₂ OCH ₂ CH (CH ₃) ₂ | CH ₂ NHCH ₂ CH (CH ₃) ₂ |
| | CH ₂ OCH ₂ (C ₆ H ₅) | CH ₂ NHCH ₂ (3CF ₃ -C ₆ H ₄) |
| | CH ₂ OCH ₂ (3CF ₃ -C ₆ H ₄) | CH ₂ NHCH ₂ (2Cl-C ₆ H ₄) |
| | CH ₂ OCH ₂ (2Cl-C ₆ H ₄) | CH ₂ NH (C ₆ H ₅) |
| | CH ₂ OCH ₂ (3SCH ₃ -C ₆ H ₄) | CH ₂ NH (2Cl-C ₆ H ₄) |
| | CH ₂ OCH ₂ (4Cl-C ₆ H ₄) | CH ₂ N (CH ₃) (2Cl-C ₆ H ₄) |
| | CH ₂ OCH ₂ (2, 4F-C ₆ H ₃) | OCH ₂ CH ₂ CH ₃ |
| | CH ₂ CH ₂ OCH ₂ CH ₂ CH ₃ | OCH ₂ (CH ₂) ₂ CH ₃ |
| | CH ₂ O (C ₆ H ₅) | OCH ₂ (CH ₂) ₃ CH ₃ |
| | CH ₂ O (3CF ₃ -C ₆ H ₄) | OCH ₂ (CH ₂) ₅ CH ₃ |
| | CH ₂ O (4CF ₃ -C ₆ H ₄) | OCH ₂ C (C ₆ H ₅) |
| | CH ₂ O (2Cl-C ₆ H ₄) | OCH ₂ (3CF ₃ -C ₆ H ₄) |
| | CH ₂ O (3SCH ₃ -C ₆ H ₄) | OCH ₂ (2Cl-C ₆ H ₄) |
| | CH ₂ O (2CH ₃ -C ₆ H ₄) | OCH ₂ CH (CH ₃) ₂ |
| | CH ₂ O (4Cl-C ₆ H ₄) | O (C ₆ H ₅) |
| | CH ₂ O (2, 4Cl-C ₆ H ₃) | O (3CF ₃ -C ₆ H ₄) |
| | CH ₂ SCH ₂ CH ₃ | O (2Cl-C ₆ H ₄) |
| | CH ₂ SCH ₂ CH ₂ CH ₃ | O (4SCH ₃ -C ₆ H ₄) |
| | CH ₂ SCH ₂ CH (CH ₃) ₂ | O (2, 4Cl-C ₆ H ₃) |
| | CH ₂ SCH ₂ (C ₆ H ₅) | SCH ₂ CH ₂ CH ₃ |
| | CH ₂ SCH ₂ (3CF ₃ -C ₆ H ₄) | SCH ₂ (CH ₂) ₂ CH ₃ |

R¹=Br, R²=CO₂HR³

(CH₂)₂CH₃
 (CH₂)₃CH₃
 (CH₂)₄CH₃
 (CH₂)₅CH₃
 (CH₂)₆CH₃
 (CH₂)₇CH₃
 (CH₂)₈CH₃
 (CH₂)₉CH₃
 CH₂CH (CH₃)₂
 CH₂CH₂CH (CH₃)₂
 CH₂CH₂CH₂CH (CH₃)₂
 CH₂CH₂CH (CH₃) CH₂CH₂CH₃
 CH₂CH (CH₂CH₃) CH₂CH₃
 CH₂CH₂CH₂OCH₂CH₃
 CH₂CH₂CH₂CH₂OCH₃
 CH₂CH₂CH₂-S-CH₂CH₃

| | | |
|---|--|---|
| SCH ₂ (CH ₂) ₃ CH ₃ | N(CH ₃)CH ₂ CH ₂ CH ₃ | CH ₂ (2,6Cl-C ₆ H ₃) |
| SCH ₂ (CH ₂) ₅ CH ₃ | N(CH ₂) ₄ | CH ₂ (3,4F-C ₆ H ₃) |
| SCH ₂ (C ₆ H ₅) | N(CH ₂) ₅ | CH ₂ -Si(CH ₃) ₃ |
| SCH ₂ (3SCH ₃ -C ₆ H ₄) | N(CH ₂) ₆ | ON=C(CH ₃) ₂ |
| SCH ₂ (2OCH ₃ -C ₆ H ₄) | N(CH ₂ CH ₂ -OCH ₂ CH ₂) ₂ | ON=CH(C ₆ H ₅) |
| SCH ₂ (2Cl-C ₆ H ₄) | CH ₂ CO ₂ CH ₃ | ON=C(CH ₃)C ₆ H ₅ |
| SCH ₂ (2,4-C ₆ H ₃) | CH ₂ CH ₂ CO ₂ CH ₂ CH ₃ | OCH ₂ (2,6-Cl-C ₆ H ₃) |
| SCH ₂ (4CF ₃ -C ₆ H ₄) | CH ₂ CH ₂ CO ₂ CH ₃ | OCH ₂ (C=CH ₂)CH ₃ |
| S(CH ₃) ₃ | CH ₂ CH ₂ OCH ₂ CH ₃ | OCH ₂ -CH(CH ₂) ₂ |
| SCH ₂ CH(CH ₃) ₂ | CH ₂ CH ₂ SCH ₂ CH ₃ | |
| S(C ₆ H ₅) | CH ₂ CH ₂ -NHCH ₂ CH ₃ | 4F-C ₆ H ₄ |
| S(3CF ₃ -C ₆ H ₄) | CH ₂ CH ₂ N(CH ₃)CH ₂ CH ₃ | 4Cl-C ₆ H ₄ |
| S(2Cl-C ₆ H ₄) | CH=CH(CH ₃) ₂ | 4Br-C ₆ H ₄ |
| S(4OCH ₃ -C ₆ H ₄) | CH ₂ CH ₂ CH=CH ₂ | 2-pyridyl |
| S(2,4Cl-C ₆ H ₃) | CH ₂ CH=CH-CH ₃ | 2-furyl |
| S(2,6F-C ₆ H ₃) | CH=CH-CH ₂ CH ₂ -Cl | 2-thiazolyl |
| 2(3CH ₃ -C ₆ H ₄) | CH ₂ CH ₂ CH-ClCH ₂ -Cl | 2-imidazolyl |
| NHCH ₂ CH ₂ CH ₃ | C ₆ H ₅ | O-2(3CF ₃ -C ₅ H ₃ N) |
| NHCH ₂ (CH ₂) ₂ CH ₃ | 3CF ₃ -C ₆ H ₄ | O-2Cl-6CF ₃ -C ₆ H ₃ |
| NHCH ₂ (CH ₂) ₄ CH ₃ | 2Cl-C ₆ H ₄ | |
| NHCH ₂ (CH ₂) ₅ CH ₃ | 3CH ₃ -C ₆ H ₄ | |
| NHCH ₂ CH(CH ₃) ₂ | 3OCH ₃ -C ₆ H ₄ | |
| NHCH ₂ (C ₆ H ₅) | 2CF ₃ -C ₆ H ₄ | |
| NHCH ₂ (3CF ₃ -C ₆ H ₄) | 2,4Cl-C ₆ H ₃ | |
| NHCH ₂ (2Cl-C ₆ H ₄) | 2,6Cl-C ₆ H ₃ | |
| NHCH ₂ (4CH ₃ -C ₆ H ₄) | 2SCH ₃ -C ₆ H ₄ | |
| NHCH ₂ (2,4Cl-C ₆ H ₃) | CH ₂ (C ₆ H ₅) | |
| NHCH ₂ (2,6Cl-C ₆ H ₃) | CH ₂ (3CF ₃ -C ₆ H ₄) | |
| NH(C ₆ H ₅) | CH ₂ (2Cl-C ₆ H ₄) | |
| NH(3CF ₃ -C ₆ H ₄) | CH ₂ (4Cl-C ₆ H ₄) | |
| NH(2Cl-C ₆ H ₄) | CH ₂ (2,4Cl-C ₆ H ₃) | |
| NH(3CH ₃ -C ₆ H ₄) | CH ₂ (3SCH ₃ -C ₆ H ₄) | |
| NH(2,4Cl-C ₆ H ₃) | CH ₂ (3OCH ₃ -C ₆ H ₄) | |
| NH(2,6Cl-C ₆ H ₃) | CH ₂ (3Cl-C ₆ H ₄) | |
| N(CH ₃)(3CF ₃ -C ₆ H ₄) | CH ₂ (2,6F-C ₆ H ₃) | |
| | | R ¹ =I, R ² =CO ₂ H |
| | | R ³ |
| | | (CH ₂) ₂ CH ₃ |
| | | (CH ₂) ₃ CH ₃ |
| | | (CH ₂) ₄ CH ₃ |
| | | (CH ₂) ₅ CH ₃ |
| | | (CH ₂) ₆ CH ₃ |
| | | (CH ₂) ₇ CH ₃ |
| | | (CH ₂) ₈ CH ₃ |
| | | (CH ₂) ₉ CH ₃ |
| | | CH ₂ CH(CH ₃) ₂ |
| | | CH ₂ CH ₂ CH(CH ₃) ₂ |
| | | CH ₂ CH ₂ CH ₂ CH(CH ₃) ₂ |
| | | CH ₂ CH ₂ CH(CH ₃)CH ₂ CH ₂ CH ₃ |
| | | CH ₂ CH(CH ₃)CH ₂ CH ₂ CH ₃ |

| | | |
|---|--|--|
| CH ₂ CH (CH ₂ CH ₃) CH ₂ CH ₃ | CH ₂ SCH ₂ CH ₂ CH ₃ | O (4SCH ₃ -C ₆ H ₄) |
| CH ₂ CH ₂ CH ₂ OCH ₂ CH ₃ | CH ₂ SCH ₂ CH (CH ₃) ₂ | O (2, 4Cl-C ₆ H ₃) |
| CH ₂ CH ₂ CH ₂ CH ₂ OCH ₃ | CH ₂ SCH ₂ (C ₆ H ₅) | SCH ₂ CH ₂ CH ₃ |
| CH ₂ CH ₂ CH ₂ -S-CH ₂ CH ₃ | CH ₂ SCH ₂ (3CF ₃ -C ₆ H ₄) | SCH ₂ (CH ₂) ₂ CH ₃ |
| CH ₂ CH ₂ CH ₂ CH ₂ SCH ₃ | CH ₂ S (2Cl-C ₆ H ₄) | SCH ₂ (CH ₂) ₃ CH ₃ |
| CH ₂ CH ₂ CH ₂ NHCH ₂ CH ₃ | CH ₂ S (4CH ₃ -C ₆ H ₄) | SCH ₂ (CH ₂) ₅ CH ₃ |
| CH ₂ CF ₂ CH (CH ₃) ₂ | CH ₂ S (2, 4Cl-C ₆ H ₃) | SCH ₂ (C ₆ H ₅) |
| CH ₂ CH ₂ CH ₂ CF ₂ CH ₃ | CH ₂ S (3SCH ₃ -C ₆ H ₄) | SCH ₂ (3SCH ₃ -C ₆ H ₄) |
| CH ₂ -cyclopropyl | CH ₂ S (2, 6Cl-C ₆ H ₃) | SCH ₂ (2OCH ₃ -C ₆ H ₄) |
| CH ₂ -cyclobutyl | CH ₂ S (C ₆ H ₅) | SCH ₂ (2Cl-C ₆ H ₄) |
| CH ₂ -cyclopentyl | CH ₂ S (3CF ₃ -C ₆ H ₄) | SCH ₂ (2, 4-C ₆ H ₃) |
| CH ₂ -cyclohexyl | CH ₂ S (2Cl-C ₆ H ₄) | SCH ₂ (4CF ₃ -C ₆ H ₄) |
| cyclopropyl | CH ₂ S (4CH ₃ -C ₆ H ₄) | S (CH ₃) ₃ |
| cyclobutyl | CH ₂ S (2, 6Cl-C ₆ H ₃) | SCH ₂ CH (CH ₃) ₂ |
| cyclopentyl | CH ₂ S (2, 4Cl-C ₆ H ₃) | S (C ₆ H ₅) |
| cyclohexyl | CH ₂ NHCH ₂ CH ₃ | S (3CF ₃ -C ₆ H ₄) |
| CH ₂ OCH ₂ CH ₃ | CH ₂ NHCH ₂ CH ₂ CH ₃ | S (2Cl-C ₆ H ₄) |
| CH ₂ OCH ₂ CH ₂ CH ₃ | CH ₂ NHCH ₂ C (C ₆ H ₅) | S (4OCH ₃ -C ₆ H ₄) |
| CH ₂ OCH ₂ CH (CH ₃) ₂ | CH ₂ NHCH ₂ CH (CH ₃) ₂ | S (2, 4Cl-C ₆ H ₃) |
| CH ₂ OCH ₂ (C ₆ H ₅) | CH ₂ NHCH ₂ (3CF ₃ -C ₆ H ₄) | S (2, 6F-C ₆ H ₃) |
| CH ₂ OCH ₂ (3CF ₃ -C ₆ H ₄) | CH ₂ NHCH ₂ (2Cl-C ₆ H ₄) | 2 (3CH ₃ -C ₆ H ₄) |
| CH ₂ OCH ₂ (2Cl-C ₆ H ₄) | CH ₂ NH (C ₆ H ₅) | NHCH ₂ CH ₂ CH ₃ |
| CH ₂ OCH ₂ (3SCH ₃ -C ₆ H ₄) | CH ₂ NH (2Cl-C ₆ H ₄) | NHCH ₂ (CH ₂) ₂ CH ₃ |
| CH ₂ OCH ₂ (4Cl-C ₆ H ₄) | CH ₂ N (CH ₃) (2Cl-C ₆ H ₄) | NHCH ₂ (CH ₂) ₄ CH ₃ |
| CH ₂ OCH ₂ (2, 4F-C ₆ H ₃) | OCH ₂ CH ₂ CH ₃ | NHCH ₂ (CH ₂) ₅ CH ₃ |
| CH ₂ CH ₂ OCH ₂ CH ₂ CH ₃ | OCH ₂ (CH ₂) ₂ CH ₃ | NHCH ₂ CH (CH ₃) ₂ |
| CH ₂ O (C ₆ H ₅) | OCH ₂ (CH ₂) ₃ CH ₃ | NHCH ₂ (C ₆ H ₅) |
| CH ₂ O (3CF ₃ -C ₆ H ₄) | OCH ₂ (CH ₂) ₅ CH ₃ | NHCH ₂ (3CF ₃ -C ₆ H ₄) |
| CH ₂ O (4CF ₃ -C ₆ H ₄) | OCH ₂ C (C ₆ H ₅) | NHCH ₂ (2Cl-C ₆ H ₄) |
| CH ₂ O (2Cl-C ₆ H ₄) | OCH ₂ (3CF ₃ -C ₆ H ₄) | NHCH ₂ (4CH ₃ -C ₆ H ₄) |
| CH ₂ O (3SCH ₃ -C ₆ H ₄) | OCH ₂ (2Cl-C ₆ H ₄) | NHCH ₂ (2, 4Cl-C ₆ H ₃) |
| CH ₂ O (2CH ₃ -C ₆ H ₄) | OCH ₂ CH (CH ₃) ₂ | NHCH ₂ (2, 6Cl-C ₆ H ₃) |
| CH ₂ O (4Cl-C ₆ H ₄) | O (C ₆ H ₅) | NH (C ₆ H ₅) |
| CH ₂ O (2, 4Cl-C ₆ H ₃) | O (3CF ₃ -C ₆ H ₄) | NH (3CF ₃ -C ₆ H ₄) |
| CH ₂ SCH ₂ CH ₃ | O (2Cl-C ₆ H ₄) | NH (2Cl-C ₆ H ₄) |

| | | |
|---|--|--|
| NH (3CH ₃ -C ₆ H ₄) | CH ₂ (3SCH ₃ -C ₆ H ₄) | CH ₂ CH ₂ CH (CH ₃) ₂ |
| NH (2, 4Cl-C ₆ H ₃) | CH ₂ (3OCH ₃ -C ₆ H ₄) | CH ₂ CH ₂ CH ₂ CH (CH ₃) ₂ |
| NH (2, 6Cl-C ₆ H ₃) | CH ₂ (3Cl-C ₆ H ₄) | CH ₂ CH ₂ CH (CH ₃)CH ₂ CH ₂ CH ₃ |
| N (CH ₃) (3CF ₃ -C ₆ H ₄) | CH ₂ (2, 6F-C ₆ H ₃) | CH ₂ CH (CH ₃)CH ₂ CH ₂ CH ₃ |
| N (CH ₃)CH ₂ CH ₂ CH ₃ | CH ₂ (2, 6Cl-C ₆ H ₃) | CH ₂ CH (CH ₂ CH ₃)CH ₂ CH ₃ |
| N (CH ₂) ₄ | CH ₂ (3, 4F-C ₆ H ₃) | CH ₂ CH ₂ CH ₂ OCH ₂ CH ₃ |
| N (CH ₂) ₅ | CH ₂ -Si (CH ₃) ₃ | CH ₂ CH ₂ CH ₂ CH ₂ OCH ₃ |
| N (CH ₂) ₆ | ON=C (CH ₃) ₂ | CH ₂ CH ₂ CH ₂ -S-CH ₂ CH ₃ |
| N (CH ₂ CH ₂ -OCH ₂ CH ₂) ₂ | ON=CH (C ₆ H ₅) | CH ₂ CH ₂ CH ₂ CH ₂ SCH ₃ |
| CH ₂ CO ₂ CH ₃ | ON=C (CH ₃)C ₆ H ₅ | CH ₂ CH ₂ CH ₂ NHCH ₂ CH ₃ |
| CH ₂ CH ₂ CO ₂ CH ₂ CH ₃ | OCH ₂ (2, 6-Cl-C ₆ H ₃) | CH ₂ CF ₂ CH (CH ₃) ₂ |
| CH ₂ CH ₂ CO ₂ CH ₃ | OCH ₂ (C=CH ₂)CH ₃ | CH ₂ CH ₂ CH ₂ CF ₂ CH ₃ |
| CH ₂ CH ₂ OCH ₂ CH ₃ | OCH ₂ -CH  | CH ₂ -cyclopropyl |
| CH ₂ CH ₂ SCH ₂ CH ₃ | | CH ₂ -cyclobutyl |
| CH ₂ CH ₂ -NHCH ₂ CH ₃ | 4F-C ₆ H ₄ | CH ₂ -cyclopentyl |
| CH ₂ CH ₂ N (CH ₃)CH ₂ CH ₃ | 4Cl-C ₆ H ₄ | CH ₂ -cyclohexyl |
| CH=CH (CH ₃) ₂ | 4Br-C ₆ H ₄ | cyclopropyl |
| CH ₂ CH ₂ CH=CH ₂ | 2-pyridyl | cyclobutyl |
| CH ₂ CH=CH-CH ₃ | 2-furyl | cyclopentyl |
| CH=CH-CH ₂ CH ₂ -Cl | 2-thiazolyl | cyclohexyl |
| CH ₂ CH ₂ CH-ClCH ₂ -Cl | 2-imidazolyl | CH ₂ OCH ₂ CH ₃ |
| C ₆ H ₅ | O-2 (3CF ₃ -C ₅ H ₃ N) | CH ₂ OCH ₂ CH ₂ CH ₃ |
| 3CF ₃ -C ₆ H ₄ | O-2Cl-6CF ₃ -C ₆ H ₃ | CH ₂ OCH ₂ CH (CH ₃) ₂ |
| 2Cl-C ₆ H ₄ | | CH ₂ OCH ₂ (C ₆ H ₅) |
| 3CH ₃ -C ₆ H ₄ | R ¹ =OCH ₃ , R ² =CO ₂ H | CH ₂ OCH ₂ (3CF ₃ -C ₆ H ₄) |
| 3OCH ₃ -C ₆ H ₄ | R ³ | CH ₂ OCH ₂ (2Cl-C ₆ H ₄) |
| 2CF ₃ -C ₆ H ₄ | (CH ₂) ₂ CH ₃ | CH ₂ OCH ₂ (3SCH ₃ -C ₆ H ₄) |
| 2, 4Cl-C ₆ H ₃ | (CH ₂) ₃ CH ₃ | CH ₂ OCH ₂ (4Cl-C ₆ H ₄) |
| 2, 6Cl-C ₆ H ₃ | (CH ₂) ₄ CH ₃ | CH ₂ OCH ₂ (2, 4F-C ₆ H ₃) |
| 2SCH ₃ -C ₆ H ₄ | (CH ₂) ₅ CH ₃ | CH ₂ CH ₂ OCH ₂ CH ₂ CH ₃ |
| CH ₂ (C ₆ H ₅) | (CH ₂) ₆ CH ₃ | CH ₂ O (C ₆ H ₅) |
| CH ₂ (3CF ₃ -C ₆ H ₄) | (CH ₂) ₇ CH ₃ | CH ₂ O (3CF ₃ -C ₆ H ₄) |
| CH ₂ (2Cl-C ₆ H ₄) | (CH ₂) ₈ CH ₃ | CH ₂ O (4CF ₃ -C ₆ H ₄) |
| CH ₂ (4Cl-C ₆ H ₄) | (CH ₂) ₉ CH ₃ | CH ₂ O (2Cl-C ₆ H ₄) |
| CH ₂ (2, 4Cl-C ₆ H ₃) | CH ₂ CH (CH ₃) ₂ | CH ₂ O (3SCH ₃ -C ₆ H ₄) |

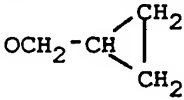
| | | |
|---|--|---|
| $\text{CH}_2\text{O} (2\text{CH}_3-\text{C}_6\text{H}_4)$ | $\text{OCH}_2\text{CH} (\text{CH}_3)_2$ | $\text{NHCH}_2 (2, 6\text{Cl}-\text{C}_6\text{H}_3)$ |
| $\text{CH}_2\text{O} (4\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{O} (\text{C}_6\text{H}_5)$ | $\text{NH} (\text{C}_6\text{H}_5)$ |
| $\text{CH}_2\text{O} (2, 4\text{Cl}-\text{C}_6\text{H}_3)$ | $\text{O} (3\text{CF}_3-\text{C}_6\text{H}_4)$ | $\text{NH} (3\text{CF}_3-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2\text{SCH}_2\text{CH}_3$ | $\text{O} (2\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{NH} (2\text{Cl}-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2\text{SCH}_2\text{CH}_2\text{CH}_3$ | $\text{O} (4\text{SCH}_3-\text{C}_6\text{H}_4)$ | $\text{NH} (3\text{CH}_3-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2\text{SCH}_2\text{CH} (\text{CH}_3)_2$ | $\text{O} (2, 4\text{Cl}-\text{C}_6\text{H}_3)$ | $\text{NH} (2, 4\text{Cl}-\text{C}_6\text{H}_3)$ |
| $\text{CH}_2\text{SCH}_2 (\text{C}_6\text{H}_5)$ | $\text{SCH}_2\text{CH}_2\text{CH}_3$ | $\text{NH} (2, 6\text{Cl}-\text{C}_6\text{H}_3)$ |
| $\text{CH}_2\text{SCH}_2 (3\text{CF}_3-\text{C}_6\text{H}_4)$ | $\text{SCH}_2 (\text{CH}_2)_2\text{CH}_3$ | $\text{N} (\text{CH}_3) (3\text{CF}_3-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2\text{S} (2\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{SCH}_2 (\text{CH}_2)_3\text{CH}_3$ | $\text{N} (\text{CH}_3) \text{CH}_2\text{CH}_2\text{CH}_3$ |
| $\text{CH}_2\text{S} (4\text{CH}_3-\text{C}_6\text{H}_4)$ | $\text{SCH}_2 (\text{CH}_2)_5\text{CH}_3$ | $\text{N} (\text{CH}_2)_4$ |
| $\text{CH}_2\text{S} (2, 4\text{Cl}-\text{C}_6\text{H}_3)$ | $\text{SCH}_2 (\text{C}_6\text{H}_5)$ | $\text{N} (\text{CH}_2)_5$ |
| $\text{CH}_2\text{S} (3\text{SCH}_3-\text{C}_6\text{H}_4)$ | $\text{SCH}_2 (3\text{SCH}_3-\text{C}_6\text{H}_4)$ | $\text{N} (\text{CH}_2)_6$ |
| $\text{CH}_2\text{S} (2, 6\text{Cl}-\text{C}_6\text{H}_3)$ | $\text{SCH}_2 (2\text{OCH}_3-\text{C}_6\text{H}_4)$ | $\text{N} (\text{CH}_2\text{CH}_2-\text{OCH}_2\text{CH}_2)_2$ |
| $\text{CH}_2\text{S} (\text{C}_6\text{H}_5)$ | $\text{SCH}_2 (2\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{CH}_2\text{CO}_2\text{CH}_3$ |
| $\text{CH}_2\text{S} (3\text{CF}_3-\text{C}_6\text{H}_4)$ | $\text{SCH}_2 (2, 4-\text{C}_6\text{H}_3)$ | $\text{CH}_2\text{CH}_2\text{CO}_2\text{CH}_2\text{CH}_3$ |
| $\text{CH}_2\text{S} (2\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{SCH}_2 (4\text{CF}_3-\text{C}_6\text{H}_4)$ | $\text{CH}_2\text{CH}_2\text{CO}_2\text{CH}_3$ |
| $\text{CH}_2\text{S} (4\text{CH}_3-\text{C}_6\text{H}_4)$ | $\text{S} (\text{CH}_3)_3$ | $\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_3$ |
| $\text{CH}_2\text{S} (2, 6\text{Cl}-\text{C}_6\text{H}_3)$ | $\text{SCH}_2\text{CH} (\text{CH}_3)_2$ | $\text{CH}_2\text{CH}_2\text{SCH}_2\text{CH}_3$ |
| $\text{CH}_2\text{S} (2, 4\text{Cl}-\text{C}_6\text{H}_3)$ | $\text{S} (\text{C}_6\text{H}_5)$ | $\text{CH}_2\text{CH}_2-\text{NHCH}_2\text{CH}_3$ |
| $\text{CH}_2\text{NHCH}_2\text{CH}_3$ | $\text{S} (3\text{CF}_3-\text{C}_6\text{H}_4)$ | $\text{CH}_2\text{CH}_2\text{N} (\text{CH}_3) \text{CH}_2\text{CH}_3$ |
| $\text{CH}_2\text{NHCH}_2\text{CH}_2\text{CH}_3$ | $\text{S} (2\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{CH}=\text{CH} (\text{CH}_3)_2$ |
| $\text{CH}_2\text{NHCH}_2\text{C} (\text{C}_6\text{H}_5)$ | $\text{S} (4\text{OCH}_3-\text{C}_6\text{H}_4)$ | $\text{CH}_2\text{CH}_2\text{CH}=\text{CH}_2$ |
| $\text{CH}_2\text{NHCH}_2\text{CH} (\text{CH}_3)_2$ | $\text{S} (2, 4\text{Cl}-\text{C}_6\text{H}_3)$ | $\text{CH}_2\text{CH}=\text{CH}-\text{CH}_3$ |
| $\text{CH}_2\text{NHCH}_2 (3\text{CF}_3-\text{C}_6\text{H}_4)$ | $\text{S} (2, 6\text{F}-\text{C}_6\text{H}_3)$ | $\text{CH}=\text{CH}-\text{CH}_2\text{CH}_2-\text{Cl}$ |
| $\text{CH}_2\text{NHCH}_2 (2\text{Cl}-\text{C}_6\text{H}_4)$ | $2 (3\text{CH}_3-\text{C}_6\text{H}_4)$ | $\text{CH}_2\text{CH}_2\text{CH}-\text{ClCH}_2-\text{Cl}$ |
| $\text{CH}_2\text{NH} (\text{C}_6\text{H}_5)$ | $\text{NHCH}_2\text{CH}_2\text{CH}_3$ | C_6H_5 |
| $\text{CH}_2\text{NH} (2\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{NHCH}_2 (\text{CH}_2)_2\text{CH}_3$ | $3\text{CF}_3-\text{C}_6\text{H}_4$ |
| $\text{CH}_2\text{N} (\text{CH}_3) (2\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{NHCH}_2 (\text{CH}_2)_4\text{CH}_3$ | $2\text{Cl}-\text{C}_6\text{H}_4$ |
| $\text{OCH}_2\text{CH}_2\text{CH}_3$ | $\text{NHCH}_2 (\text{CH}_2)_5\text{CH}_3$ | $3\text{CH}_3-\text{C}_6\text{H}_4$ |
| $\text{OCH}_2 (\text{CH}_2)_2\text{CH}_3$ | $\text{NHCH}_2\text{CH} (\text{CH}_3)_2$ | $3\text{OCH}_3-\text{C}_6\text{H}_4$ |
| $\text{OCH}_2 (\text{CH}_2)_3\text{CH}_3$ | $\text{NHCH}_2 (\text{C}_6\text{H}_5)$ | $2\text{CF}_3-\text{C}_6\text{H}_4$ |
| $\text{OCH}_2 (\text{CH}_2)_5\text{CH}_3$ | $\text{NHCH}_2 (3\text{CF}_3-\text{C}_6\text{H}_4)$ | $2, 4\text{Cl}-\text{C}_6\text{H}_3$ |
| $\text{OCH}_2\text{C} (\text{C}_6\text{H}_5)$ | $\text{NHCH}_2 (2\text{Cl}-\text{C}_6\text{H}_4)$ | $2, 6\text{Cl}-\text{C}_6\text{H}_3$ |
| $\text{OCH}_2 (3\text{CF}_3-\text{C}_6\text{H}_4)$ | $\text{NHCH}_2 (4\text{CH}_3-\text{C}_6\text{H}_4)$ | $2\text{SCH}_3-\text{C}_6\text{H}_4$ |
| $\text{OCH}_2 (2\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{NHCH}_2 (2, 4\text{Cl}-\text{C}_6\text{H}_3)$ | $\text{CH}_2 (\text{C}_6\text{H}_5)$ |

| | | |
|---|---|---|
| $\text{CH}_2(3\text{CF}_3-\text{C}_6\text{H}_4)$ | $(\text{CH}_2)_7\text{CH}_3$ | $\text{CH}_2\text{O}(3\text{CF}_3-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2(2\text{Cl}-\text{C}_6\text{H}_4)$ | $(\text{CH}_2)_8\text{CH}_3$ | $\text{CH}_2\text{O}(4\text{CF}_3-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2(4\text{Cl}-\text{C}_6\text{H}_4)$ | $(\text{CH}_2)_9\text{CH}_3$ | $\text{CH}_2\text{O}(2\text{Cl}-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2(2,4\text{Cl}-\text{C}_6\text{H}_3)$ | $\text{CH}_2\text{CH}(\text{CH}_3)_2$ | $\text{CH}_2\text{O}(3\text{SCH}_3-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2(3\text{SCH}_3-\text{C}_6\text{H}_4)$ | $\text{CH}_2\text{CH}_2\text{CH}(\text{CH}_3)_2$ | $\text{CH}_2\text{O}(2\text{CH}_3-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2(3\text{OCH}_3-\text{C}_6\text{H}_4)$ | $\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}(\text{CH}_3)_2$ | $\text{CH}_2\text{O}(4\text{Cl}-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2(3\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{CH}_2\text{CH}_2\text{CH}(\text{CH}_3)\text{CH}_2\text{CH}_2\text{CH}_3$ | $\text{CH}_2\text{O}(2,4\text{Cl}-\text{C}_6\text{H}_3)$ |
| $\text{CH}_2(2,6\text{F}-\text{C}_6\text{H}_3)$ | $\text{CH}_2\text{CH}(\text{CH}_3)\text{CH}_2\text{CH}_2\text{CH}_3$ | $\text{CH}_2\text{SCH}_2\text{CH}_3$ |
| $\text{CH}_2(2,6\text{Cl}-\text{C}_6\text{H}_3)$ | $\text{CH}_2\text{CH}(\text{CH}_2\text{CH}_3)\text{CH}_2\text{CH}_3$ | $\text{CH}_2\text{SCH}_2\text{CH}_2\text{CH}_3$ |
| $\text{CH}_2(3,4\text{F}-\text{C}_6\text{H}_3)$ | $\text{CH}_2\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_3$ | $\text{CH}_2\text{SCH}_2\text{CH}(\text{CH}_3)_2$ |
| $\text{CH}_2-\text{Si}(\text{CH}_3)_3$ | $\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{OCH}_3$ | $\text{CH}_2\text{SCH}_2(\text{C}_6\text{H}_5)$ |
| $\text{ON}=\text{C}(\text{CH}_3)_2$ | $\text{CH}_2\text{CH}_2\text{CH}_2-\text{S}-\text{CH}_2\text{CH}_3$ | $\text{CH}_2\text{SCH}_2(3\text{CF}_3-\text{C}_6\text{H}_4)$ |
| $\text{ON}=\text{CH}(\text{C}_6\text{H}_5)$ | $\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{SCH}_3$ | $\text{CH}_2\text{S}(2\text{Cl}-\text{C}_6\text{H}_4)$ |
| $\text{ON}=\text{C}(\text{CH}_3)\text{C}_6\text{H}_5$ | $\text{CH}_2\text{CH}_2\text{CH}_2\text{NHCH}_2\text{CH}_3$ | $\text{CH}_2\text{S}(4\text{CH}_3-\text{C}_6\text{H}_4)$ |
| $\text{OCH}_2(2,6-\text{Cl}-\text{C}_6\text{H}_3)$ | $\text{CH}_2\text{CF}_2\text{CH}(\text{CH}_3)_2$ | $\text{CH}_2\text{S}(2,4\text{Cl}-\text{C}_6\text{H}_3)$ |
| $\text{OCH}_2(\text{C}=\text{CH}_2)\text{CH}_3$ | $\text{CH}_2\text{CH}_2\text{CH}_2\text{CF}_2\text{CH}_3$ | $\text{CH}_2\text{S}(3\text{SCH}_3-\text{C}_6\text{H}_4)$ |
| $\text{OCH}_2-\text{CH} \begin{array}{l} \text{CH}_2 \\ \\ \text{CH}_2 \end{array}$ | $\text{CH}_2\text{-cyclopropyl}$ | $\text{CH}_2\text{S}(2,6\text{Cl}-\text{C}_6\text{H}_3)$ |
| $4\text{F}-\text{C}_6\text{H}_4$ | $\text{CH}_2\text{-cyclobutyl}$ | $\text{CH}_2\text{S}(\text{C}_6\text{H}_5)$ |
| $4\text{Cl}-\text{C}_6\text{H}_4$ | $\text{CH}_2\text{-cyclopentyl}$ | $\text{CH}_2\text{S}(3\text{CF}_3-\text{C}_6\text{H}_4)$ |
| $4\text{Br}-\text{C}_6\text{H}_4$ | $\text{CH}_2\text{-cyclohexyl}$ | $\text{CH}_2\text{S}(2\text{Cl}-\text{C}_6\text{H}_4)$ |
| 2-pyridyl | cyclopropyl | $\text{CH}_2\text{S}(4\text{CH}_3-\text{C}_6\text{H}_4)$ |
| 2-furyl | cyclobutyl | $\text{CH}_2\text{S}(2,6\text{Cl}-\text{C}_6\text{H}_3)$ |
| 2-thiazolyl | cyclopentyl | $\text{CH}_2\text{S}(2,4\text{Cl}-\text{C}_6\text{H}_3)$ |
| 2-imidazolyl | cyclohexyl | $\text{CH}_2\text{NHCH}_2\text{CH}_3$ |
| $\text{O}-2(3\text{CF}_3-\text{C}_5\text{H}_3\text{N})$ | $\text{CH}_2\text{OCH}_2\text{CH}_3$ | $\text{CH}_2\text{NHCH}_2\text{CH}_2\text{CH}_3$ |
| $\text{O}-2\text{Cl}-6\text{CF}_3-\text{C}_6\text{H}_3$ | $\text{CH}_2\text{OCH}_2\text{CH}_2\text{CH}_3$ | $\text{CH}_2\text{NHCH}_2\text{C}(\text{C}_6\text{H}_5)$ |
| | $\text{CH}_2\text{OCH}_2\text{CH}(\text{CH}_3)_2$ | $\text{CH}_2\text{NHCH}_2\text{CH}(\text{CH}_3)_2$ |
| | $\text{CH}_2\text{OCH}_2(\text{C}_6\text{H}_5)$ | $\text{CH}_2\text{NHCH}_2(3\text{CF}_3-\text{C}_6\text{H}_4)$ |
| | $\text{CH}_2\text{OCH}_2(3\text{CF}_3-\text{C}_6\text{H}_4)$ | $\text{CH}_2\text{NHCH}_2(2\text{Cl}-\text{C}_6\text{H}_4)$ |
| | $\text{CH}_2\text{OCH}_2(2\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{CH}_2\text{NH}(\text{C}_6\text{H}_5)$ |
| | $\text{CH}_2\text{OCH}_2(3\text{SCH}_3-\text{C}_6\text{H}_4)$ | $\text{CH}_2\text{NH}(2\text{Cl}-\text{C}_6\text{H}_4)$ |
| | $\text{CH}_2\text{OCH}_2(4\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{CH}_2\text{N}(\text{CH}_3)(2\text{Cl}-\text{C}_6\text{H}_4)$ |
| | $\text{CH}_2\text{OCH}_2(2,4\text{F}-\text{C}_6\text{H}_3)$ | $\text{OCH}_2\text{CH}_2\text{CH}_3$ |
| | $\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_2\text{CH}_3$ | $\text{OCH}_2(\text{CH}_2)_2\text{CH}_3$ |
| | $\text{CH}_2\text{O}(\text{C}_6\text{H}_5)$ | $\text{OCH}_2(\text{CH}_2)_3\text{CH}_3$ |

 $\text{R}^1=\text{OCF}_3, \text{R}^2=\text{CO}_2\text{H}$
 R^3
 $(\text{CH}_2)_2\text{CH}_3$
 $(\text{CH}_2)_3\text{CH}_3$
 $(\text{CH}_2)_4\text{CH}_3$
 $(\text{CH}_2)_5\text{CH}_3$
 $(\text{CH}_2)_6\text{CH}_3$

| | | |
|--|--|---|
| OCH ₂ (CH ₂) ₅ CH ₃ | NHCH ₂ (3CF ₃ -C ₆ H ₄) | 2,4Cl-C ₆ H ₃ |
| OCH ₂ C(C ₆ H ₅) | NHCH ₂ (2Cl-C ₆ H ₄) | 2,6Cl-C ₆ H ₃ |
| OCH ₂ (3CF ₃ -C ₆ H ₄) | NHCH ₂ (4CH ₃ -C ₆ H ₄) | 2SCH ₃ -C ₆ H ₄ |
| OCH ₂ (2Cl-C ₆ H ₄) | NHCH ₂ (2,4Cl-C ₆ H ₃) | CH ₂ (C ₆ H ₅) |
| OCH ₂ CH(CH ₃) ₂ | NHCH ₂ (2,6Cl-C ₆ H ₃) | CH ₂ (3CF ₃ -C ₆ H ₄) |
| O(C ₆ H ₅) | NH(C ₆ H ₅) | CH ₂ (2Cl-C ₆ H ₄) |
| O(3CF ₃ -C ₆ H ₄) | NH(3CF ₃ -C ₆ H ₄) | CH ₂ (4Cl-C ₆ H ₄) |
| O(2Cl-C ₆ H ₄) | NH(2Cl-C ₆ H ₄) | CH ₂ (2,4Cl-C ₆ H ₃) |
| O(4SCH ₃ -C ₆ H ₄) | NH(3CH ₃ -C ₆ H ₄) | CH ₂ (3SCH ₃ -C ₆ H ₄) |
| O(2,4Cl-C ₆ H ₃) | NH(2,4Cl-C ₆ H ₃) | CH ₂ (3OCH ₃ -C ₆ H ₄) |
| SCH ₂ CH ₂ CH ₃ | NH(2,6Cl-C ₆ H ₃) | CH ₂ (3Cl-C ₆ H ₄) |
| SCH ₂ (CH ₂) ₂ CH ₃ | N(CH ₃)(3CF ₃ -C ₆ H ₄) | CH ₂ (2,6F-C ₆ H ₃) |
| SCH ₂ (CH ₂) ₃ CH ₃ | N(CH ₃)CH ₂ CH ₂ CH ₃ | CH ₂ (2,6Cl-C ₆ H ₃) |
| SCH ₂ (CH ₂) ₅ CH ₃ | N(CH ₂) ₄ | CH ₂ (3,4F-C ₆ H ₃) |
| SCH ₂ (C ₆ H ₅) | N(CH ₂) ₅ | CH ₂ -Si(CH ₃) ₃ |
| SCH ₂ (3SCH ₃ -C ₆ H ₄) | N(CH ₂) ₆ | ON=C(CH ₃) ₂ |
| SCH ₂ (2OCH ₃ -C ₆ H ₄) | N(CH ₂ CH ₂ -OCH ₂ CH ₂) ₂ | ON=CH(C ₆ H ₅) |
| SCH ₂ (2Cl-C ₆ H ₄) | CH ₂ CO ₂ CH ₃ | ON=C(CH ₃)C ₆ H ₅ |
| SCH ₂ (2,4-C ₆ H ₃) | CH ₂ CH ₂ CO ₂ CH ₂ CH ₃ | OCH ₂ (2,6-Cl-C ₆ H ₃) |
| SCH ₂ (4CF ₃ -C ₆ H ₄) | CH ₂ CH ₂ CO ₂ CH ₃ | OCH ₂ (C=CH ₂)CH ₃ |
| S(CH ₃) ₃ | CH ₂ CH ₂ OCH ₂ CH ₃ | OCH ₂ -CH ₂ CH ₂ |
| SCH ₂ CH(CH ₃) ₂ | CH ₂ CH ₂ SCH ₂ CH ₃ | 4F-C ₆ H ₄ |
| S(C ₆ H ₅) | CH ₂ CH ₂ -NHCH ₂ CH ₃ | 4Cl-C ₆ H ₄ |
| S(3CF ₃ -C ₆ H ₄) | CH ₂ CH ₂ N(CH ₃)CH ₂ CH ₃ | 4Br-C ₆ H ₄ |
| S(2Cl-C ₆ H ₄) | CH=CH(CH ₃) ₂ | 2-pyridyl |
| S(4OCH ₃ -C ₆ H ₄) | CH ₂ CH ₂ CH=CH ₂ | 2-furyl |
| S(2,4Cl-C ₆ H ₃) | CH ₂ CH=CH-CH ₃ | 2-thiazolyl |
| S(2,6F-C ₆ H ₃) | CH=CH-CH ₂ CH ₂ -Cl | 2-imidazolyl |
| 2(3CH ₃ -C ₆ H ₄) | CH ₂ CH ₂ CH-ClCH ₂ -Cl | O-2(3CF ₃ -C ₅ H ₃ N) |
| NHCH ₂ CH ₂ CH ₃ | C ₆ H ₅ | O-2Cl-6CF ₃ -C ₆ H ₃ |
| NHCH ₂ (CH ₂) ₂ CH ₃ | 3CF ₃ -C ₆ H ₄ | |
| NHCH ₂ (CH ₂) ₄ CH ₃ | 2Cl-C ₆ H ₄ | |
| NHCH ₂ (CH ₂) ₅ CH ₃ | 3CH ₃ -C ₆ H ₄ | |
| NHCH ₂ CH(CH ₃) ₂ | 3OCH ₃ -C ₆ H ₄ | |
| NHCH ₂ (C ₆ H ₅) | 2CF ₃ -C ₆ H ₄ | |
| | | R ¹ =OCF ₂ H, R ² =CO ₂ H |
| | | R ³ |
| | | (CH ₂) ₂ CH ₃ |

| | | |
|---|---|---|
| $(\text{CH}_2)_3\text{CH}_3$ | $\text{CH}_2\text{OCH}_2(4\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{CH}_2\text{N}(\text{CH}_3)(2\text{Cl}-\text{C}_6\text{H}_4)$ |
| $(\text{CH}_2)_4\text{CH}_3$ | $\text{CH}_2\text{OCH}_2(2,4\text{F}-\text{C}_6\text{H}_3)$ | $\text{OCH}_2\text{CH}_2\text{CH}_3$ |
| $(\text{CH}_2)_5\text{CH}_3$ | $\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_2\text{CH}_3$ | $\text{OCH}_2(\text{CH}_2)_2\text{CH}_3$ |
| $(\text{CH}_2)_6\text{CH}_3$ | $\text{CH}_2\text{O}(\text{C}_6\text{H}_5)$ | $\text{OCH}_2(\text{CH}_2)_3\text{CH}_3$ |
| $(\text{CH}_2)_7\text{CH}_3$ | $\text{CH}_2\text{O}(3\text{CF}_3-\text{C}_6\text{H}_4)$ | $\text{OCH}_2(\text{CH}_2)_5\text{CH}_3$ |
| $(\text{CH}_2)_8\text{CH}_3$ | $\text{CH}_2\text{O}(4\text{CF}_3-\text{C}_6\text{H}_4)$ | $\text{OCH}_2\text{C}(\text{C}_6\text{H}_5)$ |
| $(\text{CH}_2)_9\text{CH}_3$ | $\text{CH}_2\text{O}(2\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{OCH}_2(3\text{CF}_3-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2\text{CH}(\text{CH}_3)_2$ | $\text{CH}_2\text{O}(3\text{SCH}_3-\text{C}_6\text{H}_4)$ | $\text{OCH}_2(2\text{Cl}-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2\text{CH}_2\text{CH}(\text{CH}_3)_2$ | $\text{CH}_2\text{O}(2\text{CH}_3-\text{C}_6\text{H}_4)$ | $\text{OCH}_2\text{CH}(\text{CH}_3)_2$ |
| $\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}(\text{CH}_3)_2$ | $\text{CH}_2\text{O}(4\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{O}(\text{C}_6\text{H}_5)$ |
| $\text{CH}_2\text{CH}_2\text{CH}(\text{CH}_3)\text{CH}_2\text{CH}_2\text{CH}_3$ | $\text{CH}_2\text{O}(2,4\text{Cl}-\text{C}_6\text{H}_3)$ | $\text{O}(3\text{CF}_3-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2\text{CH}(\text{CH}_3)\text{CH}_2\text{CH}_2\text{CH}_3$ | $\text{CH}_2\text{SCH}_2\text{CH}_3$ | $\text{O}(2\text{Cl}-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2\text{CH}(\text{CH}_2\text{CH}_3)\text{CH}_2\text{CH}_3$ | $\text{CH}_2\text{SCH}_2\text{CH}_2\text{CH}_3$ | $\text{O}(4\text{SCH}_3-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_3$ | $\text{CH}_2\text{SCH}_2\text{CH}(\text{CH}_3)_2$ | $\text{O}(2,4\text{Cl}-\text{C}_6\text{H}_3)$ |
| $\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{OCH}_3$ | $\text{CH}_2\text{SCH}_2(\text{C}_6\text{H}_5)$ | $\text{SCH}_2\text{CH}_2\text{CH}_3$ |
| $\text{CH}_2\text{CH}_2\text{CH}_2-\text{S}-\text{CH}_2\text{CH}_3$ | $\text{CH}_2\text{SCH}_2(3\text{CF}_3-\text{C}_6\text{H}_4)$ | $\text{SCH}_2(\text{CH}_2)_2\text{CH}_3$ |
| $\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{SCH}_3$ | $\text{CH}_2\text{S}(2\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{SCH}_2(\text{CH}_2)_3\text{CH}_3$ |
| $\text{CH}_2\text{CH}_2\text{CH}_2\text{NHCH}_2\text{CH}_3$ | $\text{CH}_2\text{S}(4\text{CH}_3-\text{C}_6\text{H}_4)$ | $\text{SCH}_2(\text{CH}_2)_5\text{CH}_3$ |
| $\text{CH}_2\text{CF}_2\text{CH}(\text{CH}_3)_2$ | $\text{CH}_2\text{S}(2,4\text{Cl}-\text{C}_6\text{H}_3)$ | $\text{SCH}_2(\text{C}_6\text{H}_5)$ |
| $\text{CH}_2\text{CH}_2\text{CH}_2\text{CF}_2\text{CH}_3$ | $\text{CH}_2\text{S}(3\text{SCH}_3-\text{C}_6\text{H}_4)$ | $\text{SCH}_2(3\text{SCH}_3-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2\text{-cyclopropyl}$ | $\text{CH}_2\text{S}(2,6\text{Cl}-\text{C}_6\text{H}_3)$ | $\text{SCH}_2(2\text{OCH}_3-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2\text{-cyclobutyl}$ | $\text{CH}_2\text{S}(\text{C}_6\text{H}_5)$ | $\text{SCH}_2(2\text{Cl}-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2\text{-cyclopentyl}$ | $\text{CH}_2\text{S}(3\text{CF}_3-\text{C}_6\text{H}_4)$ | $\text{SCH}_2(2,4-\text{C}_6\text{H}_3)$ |
| $\text{CH}_2\text{-cyclohexyl}$ | $\text{CH}_2\text{S}(2\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{SCH}_2(4\text{CF}_3-\text{C}_6\text{H}_4)$ |
| cyclopropyl | $\text{CH}_2\text{S}(4\text{CH}_3-\text{C}_6\text{H}_4)$ | $\text{S}(\text{CH}_3)_3$ |
| cyclobutyl | $\text{CH}_2\text{S}(2,6\text{Cl}-\text{C}_6\text{H}_3)$ | $\text{SCH}_2\text{CH}(\text{CH}_3)_2$ |
| cyclopentyl | $\text{CH}_2\text{S}(2,4\text{Cl}-\text{C}_6\text{H}_3)$ | $\text{S}(\text{C}_6\text{H}_5)$ |
| cyclohexyl | $\text{CH}_2\text{NHCH}_2\text{CH}_3$ | $\text{S}(3\text{CF}_3-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2\text{OCH}_2\text{CH}_3$ | $\text{CH}_2\text{NHCH}_2\text{CH}_2\text{CH}_3$ | $\text{S}(2\text{Cl}-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2\text{OCH}_2\text{CH}_2\text{CH}_3$ | $\text{CH}_2\text{NHCH}_2\text{C}(\text{C}_6\text{H}_5)$ | $\text{S}(4\text{OCH}_3-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2\text{OCH}_2\text{CH}(\text{CH}_3)_2$ | $\text{CH}_2\text{NHCH}_2\text{CH}(\text{CH}_3)_2$ | $\text{S}(2,4\text{Cl}-\text{C}_6\text{H}_3)$ |
| $\text{CH}_2\text{OCH}_2(\text{C}_6\text{H}_5)$ | $\text{CH}_2\text{NHCH}_2(3\text{CF}_3-\text{C}_6\text{H}_4)$ | $\text{S}(2,6\text{F}-\text{C}_6\text{H}_3)$ |
| $\text{CH}_2\text{OCH}_2(3\text{CF}_3-\text{C}_6\text{H}_4)$ | $\text{CH}_2\text{NHCH}_2(2\text{Cl}-\text{C}_6\text{H}_4)$ | $2(3\text{CH}_3-\text{C}_6\text{H}_4)$ |
| $\text{CH}_2\text{OCH}_2(2\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{CH}_2\text{NH}(\text{C}_6\text{H}_5)$ | $\text{NHCH}_2\text{CH}_2\text{CH}_3$ |
| $\text{CH}_2\text{OCH}_2(3\text{SCH}_3-\text{C}_6\text{H}_4)$ | $\text{CH}_2\text{NH}(2\text{Cl}-\text{C}_6\text{H}_4)$ | $\text{NHCH}_2(\text{CH}_2)_2\text{CH}_3$ |

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| NHCH ₂ (CH ₂) ₄ CH ₃ | 2Cl-C ₆ H ₄ | R ¹ =NO ₂ , R ² =CO ₂ H |
| NHCH ₂ (CH ₂) ₅ CH ₃ | 3CH ₃ -C ₆ H ₄ | |
| NHCH ₂ CH(CH ₃) ₂ | 3OCH ₃ -C ₆ H ₄ | R ³ |
| NHCH ₂ (C ₆ H ₅) | 2CF ₃ -C ₆ H ₄ | (CH ₂) ₂ CH ₃ |
| NHCH ₂ (3CF ₃ -C ₆ H ₄) | 2, 4Cl-C ₆ H ₃ | (CH ₂) ₃ CH ₃ |
| NHCH ₂ (2Cl-C ₆ H ₄) | 2, 6Cl-C ₆ H ₃ | (CH ₂) ₄ CH ₃ |
| NHCH ₂ (4CH ₃ -C ₆ H ₄) | 2SCH ₃ -C ₆ H ₄ | (CH ₂) ₅ CH ₃ |
| NHCH ₂ (2, 4Cl-C ₆ H ₃) | CH ₂ (C ₆ H ₅) | (CH ₂) ₆ CH ₃ |
| NHCH ₂ (2, 6Cl-C ₆ H ₃) | CH ₂ (3CF ₃ -C ₆ H ₄) | (CH ₂) ₇ CH ₃ |
| NH(C ₆ H ₅) | CH ₂ (2Cl-C ₆ H ₄) | (CH ₂) ₈ CH ₃ |
| NH(3CF ₃ -C ₆ H ₄) | CH ₂ (4Cl-C ₆ H ₄) | (CH ₂) ₉ CH ₃ |
| NH(2Cl-C ₆ H ₄) | CH ₂ (2, 4Cl-C ₆ H ₃) | CH ₂ CH(CH ₃) ₂ |
| NH(3CH ₃ -C ₆ H ₄) | CH ₂ (3SCH ₃ -C ₆ H ₄) | CH ₂ CH ₂ CH(CH ₃) ₂ |
| NH(2, 4Cl-C ₆ H ₃) | CH ₂ (3OCH ₃ -C ₆ H ₄) | CH ₂ CH ₂ CH(CH ₃)CH ₂ CH ₂ CH ₃ |
| NH(2, 6Cl-C ₆ H ₃) | CH ₂ (3Cl-C ₆ H ₄) | CH ₂ CH(CH ₃)CH ₂ CH ₂ CH ₃ |
| N(CH ₃)(3CF ₃ -C ₆ H ₄) | CH ₂ (2, 6F-C ₆ H ₃) | CH ₂ CH(CH ₂ CH ₃)CH ₂ CH ₃ |
| N(CH ₃)CH ₂ CH ₂ CH ₃ | CH ₂ (2, 6Cl-C ₆ H ₃) | CH ₂ CH ₂ CH ₂ OCH ₂ CH ₃ |
| N(CH ₂) ₄ | CH ₂ (3, 4F-C ₆ H ₃) | CH ₂ CH ₂ CH ₂ CH ₂ OCH ₃ |
| N(CH ₂) ₅ | CH ₂ -Si(CH ₃) ₃ | CH ₂ CH ₂ CH ₂ -S-CH ₂ CH ₃ |
| N(CH ₂) ₆ | ON=C(CH ₃) ₂ | CH ₂ CH ₂ CH ₂ CH ₂ SCH ₃ |
| N(CH ₂ CH ₂ -OCH ₂ CH ₂) ₂ | ON=CH(C ₆ H ₅) | CH ₂ CH ₂ CH ₂ NHCH ₂ CH ₃ |
| CH ₂ CO ₂ CH ₃ | ON=C(CH ₃)C ₆ H ₅ | CH ₂ CF ₂ CH(CH ₃) ₂ |
| CH ₂ CH ₂ CO ₂ CH ₂ CH ₃ | OCH ₂ (2, 6-Cl-C ₆ H ₃) | CH ₂ CH ₂ CH ₂ CF ₂ CH ₃ |
| CH ₂ CH ₂ CO ₂ CH ₃ | OCH ₂ (C=CH ₂)CH ₃ | CH ₂ -cyclopropyl |
| CH ₂ CH ₂ OCH ₂ CH ₃ | OCH ₂ -CH  | CH ₂ -cyclobutyl |
| CH ₂ CH ₂ SCH ₂ CH ₃ | 4F-C ₆ H ₄ | CH ₂ -cyclopentyl |
| CH ₂ CH ₂ -NHCH ₂ CH ₃ | 4Cl-C ₆ H ₄ | CH ₂ -cyclohexyl |
| CH ₂ CH ₂ N(CH ₃)CH ₂ CH ₃ | 4Br-C ₆ H ₄ | cyclopropyl |
| CH=CH(CH ₃) ₂ | 2-pyridyl | cyclobutyl |
| CH ₂ CH ₂ CH=CH ₂ | 2-furyl | cyclopentyl |
| CH ₂ CH=CH-CH ₃ | 2-thiazolyl | cyclohexyl |
| CH=CH-CH ₂ CH ₂ -Cl | 2-imidazolyl | CH ₂ OCH ₂ CH ₃ |
| CH ₂ CH ₂ CH-ClCH ₂ -Cl | O-2(3CF ₃ -C ₅ H ₃ N) | CH ₂ OCH ₂ CH ₂ CH ₃ |
| C ₆ H ₅ | O-2Cl-6CF ₃ -C ₆ H ₃ | CH ₂ OCH ₂ CH(CH ₃) ₂ |
| 3CF ₃ -C ₆ H ₄ | | |

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| CH ₂ OCH ₂ (C ₆ H ₅) | CH ₂ NHCH ₂ (3CF ₃ -C ₆ H ₄) | S (2, 6F-C ₆ H ₃) |
| CH ₂ OCH ₂ (3CF ₃ -C ₆ H ₄) | CH ₂ NHCH ₂ (2Cl-C ₆ H ₄) | 2 (3CH ₃ -C ₆ H ₄) |
| CH ₂ OCH ₂ (2Cl-C ₆ H ₄) | CH ₂ NH (C ₆ H ₅) | NHCH ₂ CH ₂ CH ₃ |
| CH ₂ OCH ₂ (3SCH ₃ -C ₆ H ₄) | CH ₂ NH (2Cl-C ₆ H ₄) | NHCH ₂ (CH ₂) ₂ CH ₃ |
| CH ₂ OCH ₂ (4Cl-C ₆ H ₄) | CH ₂ N (CH ₃) (2Cl-C ₆ H ₄) | NHCH ₂ (CH ₂) ₄ CH ₃ |
| CH ₂ OCH ₂ (2, 4F-C ₆ H ₃) | OCH ₂ CH ₂ CH ₃ | NHCH ₂ (CH ₂) ₅ CH ₃ |
| CH ₂ CH ₂ OCH ₂ CH ₂ CH ₃ | OCH ₂ (CH ₂) ₂ CH ₃ | NHCH ₂ CH (CH ₃) ₂ |
| CH ₂ O (C ₆ H ₅) | OCH ₂ (CH ₂) ₃ CH ₃ | NHCH ₂ (C ₆ H ₅) |
| CH ₂ O (3CF ₃ -C ₆ H ₄) | OCH ₂ (CH ₂) ₅ CH ₃ | NHCH ₂ (3CF ₃ -C ₆ H ₄) |
| CH ₂ O (4CF ₃ -C ₆ H ₄) | OCH ₂ C (C ₆ H ₅) | NHCH ₂ (2Cl-C ₆ H ₄) |
| CH ₂ O (2Cl-C ₆ H ₄) | OCH ₂ (3CF ₃ -C ₆ H ₄) | NHCH ₂ (4CH ₃ -C ₆ H ₄) |
| CH ₂ O (3SCH ₃ -C ₆ H ₄) | OCH ₂ (2Cl-C ₆ H ₄) | NHCH ₂ (2, 4Cl-C ₆ H ₃) |
| CH ₂ O (2CH ₃ -C ₆ H ₄) | OCH ₂ CH (CH ₃) ₂ | NHCH ₂ (2, 6Cl-C ₆ H ₃) |
| CH ₂ O (4Cl-C ₆ H ₄) | O (C ₆ H ₅) | NH (C ₆ H ₅) |
| CH ₂ O (2, 4Cl-C ₆ H ₃) | O (3CF ₃ -C ₆ H ₄) | NH (3CF ₃ -C ₆ H ₄) |
| CH ₂ SCH ₂ CH ₃ | O (2Cl-C ₆ H ₄) | NH (2Cl-C ₆ H ₄) |
| CH ₂ SCH ₂ CH ₂ CH ₃ | O (4SCH ₃ -C ₆ H ₄) | NH (3CH ₃ -C ₆ H ₄) |
| CH ₂ SCH ₂ CH (CH ₃) ₂ | O (2, 4Cl-C ₆ H ₃) | NH (2, 4Cl-C ₆ H ₃) |
| CH ₂ SCH ₂ (C ₆ H ₅) | SCH ₂ CH ₂ CH ₃ | NH (2, 6Cl-C ₆ H ₃) |
| CH ₂ SCH ₂ (3CF ₃ -C ₆ H ₄) | SCH ₂ (CH ₂) ₂ CH ₃ | N (CH ₃) (3CF ₃ -C ₆ H ₄) |
| CH ₂ S (2Cl-C ₆ H ₄) | SCH ₂ (CH ₂) ₃ CH ₃ | N (CH ₃)CH ₂ CH ₂ CH ₃ |
| CH ₂ S (4CH ₃ -C ₆ H ₄) | SCH ₂ (CH ₂) ₅ CH ₃ | N (CH ₂) ₄ |
| CH ₂ S (2, 4Cl-C ₆ H ₃) | SCH ₂ (C ₆ H ₅) | N (CH ₂) ₅ |
| CH ₂ S (3SCH ₃ -C ₆ H ₄) | SCH ₂ (3SCH ₃ -C ₆ H ₄) | N (CH ₂) ₆ |
| CH ₂ S (2, 6Cl-C ₆ H ₃) | SCH ₂ (2OCH ₃ -C ₆ H ₄) | N (CH ₂ CH ₂ -OCH ₂ CH ₂) ₂ |
| CH ₂ S (C ₆ H ₅) | SCH ₂ (2Cl-C ₆ H ₄) | CH ₂ CO ₂ CH ₃ |
| CH ₂ S (3CF ₃ -C ₆ H ₄) | SCH ₂ (2, 4-C ₆ H ₃) | CH ₂ CH ₂ CO ₂ CH ₂ CH ₃ |
| CH ₂ S (2Cl-C ₆ H ₄) | SCH ₂ (4CF ₃ -C ₆ H ₄) | CH ₂ CH ₂ CO ₂ CH ₃ |
| CH ₂ S (4CH ₃ -C ₆ H ₄) | S (CH ₃) ₃ | CH ₂ CH ₂ OCH ₂ CH ₃ |
| CH ₂ S (2, 6Cl-C ₆ H ₃) | SCH ₂ CH (CH ₃) ₂ | CH ₂ CH ₂ SCH ₂ CH ₃ |
| CH ₂ S (2, 4Cl-C ₆ H ₃) | S (C ₆ H ₅) | CH ₂ CH ₂ -NHCH ₂ CH ₃ |
| CH ₂ NHCH ₂ CH ₃ | S (3CF ₃ -C ₆ H ₄) | CH ₂ CH ₂ N (CH ₃)CH ₂ CH ₃ |
| CH ₂ NHCH ₂ CH ₂ CH ₃ | S (2Cl-C ₆ H ₄) | CH=CH (CH ₃) ₂ |
| CH ₂ NHCH ₂ C (C ₆ H ₅) | S (4OCH ₃ -C ₆ H ₄) | CH ₂ CH ₂ CH=CH ₂ |
| CH ₂ NHCH ₂ CH (CH ₃) ₂ | S (2, 4Cl-C ₆ H ₃) | CH ₂ CH=CH-CH ₃ |

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| CH=CH-CH ₂ CH ₂ -Cl | 3CF ₃ -C ₆ H ₄ | R ¹ =OCH ₃ , R ² =CO ₂ CH ₃ |
| CH ₂ CH ₂ CH-ClCH ₂ -Cl | 2Cl-C ₆ H ₄ | R ³ |
| C ₆ H ₅ | | (CH ₂) ₃ CH ₃ |
| 3CF ₃ -C ₆ H ₄ | R ¹ =Br, R ² =CO ₂ CH ₃ | CH ₂ CH(CH ₃) ₂ |
| 2Cl-C ₆ H ₄ | R ³ | CH ₂ CH ₂ CH(CH ₃) ₂ |
| 3CH ₃ -C ₆ H ₄ | (CH ₂) ₃ CH ₃ | CH ₂ -cyclopentyl |
| 3OCH ₃ -C ₆ H ₄ | CH ₂ CH(CH ₃) ₂ | CH ₂ O(C ₆ H ₅) |
| 2CF ₃ -C ₆ H ₄ | CH ₂ CH ₂ CH(CH ₃) ₂ | CH ₂ SCH ₂ CH(CH ₃) ₂ |
| 2, 4Cl-C ₆ H ₃ | CH ₂ -cyclopentyl | CH ₂ NHCH ₂ CH(CH ₃) ₂ |
| 2, 6Cl-C ₆ H ₃ | CH ₂ O(C ₆ H ₅) | OCH ₂ CH(CH ₃) ₂ |
| 2SCH ₃ -C ₆ H ₄ | CH ₂ SCH ₂ CH(CH ₃) ₂ | NHCH ₂ CH(CH ₃) ₂ |
| CH ₂ (C ₆ H ₅) | CH ₂ NHCH ₂ CH(CH ₃) ₂ | C ₆ H ₅ |
| CH ₂ (3CF ₃ -C ₆ H ₄) | OCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ |
| CH ₂ (2Cl-C ₆ H ₄) | NHCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ |
| CH ₂ (4Cl-C ₆ H ₄) | C ₆ H ₅ | |
| CH ₂ (2, 4Cl-C ₆ H ₃) | 3CF ₃ -C ₆ H ₄ | R ¹ =OCF ₃ , R ² =CO ₂ CH ₃ |
| CH ₂ (3SCH ₃ -C ₆ H ₄) | 2Cl-C ₆ H ₄ | R ³ |
| CH ₂ (3OCH ₃ -C ₆ H ₄) | | (CH ₂) ₃ CH ₃ |
| CH ₂ (3Cl-C ₆ H ₄) | R ¹ =I, R ² =CO ₂ CH ₃ | CH ₂ CH(CH ₃) ₂ |
| CH ₂ (2, 6F-C ₆ H ₃) | R ³ | CH ₂ CH ₂ CH(CH ₃) ₂ |
| CH ₂ (2, 6Cl-C ₆ H ₃) | (CH ₂) ₃ CH ₃ | CH ₂ -cyclopentyl |
| CH ₂ (3, 4F-C ₆ H ₃) | CH ₂ CH(CH ₃) ₂ | CH ₂ O(C ₆ H ₅) |
| | CH ₂ CH ₂ CH(CH ₃) ₂ | CH ₂ SCH ₂ CH(CH ₃) ₂ |
| R ¹ =Cl, R ² =CO ₂ CH ₃ | CH ₂ -cyclopentyl | CH ₂ NHCH ₂ CH(CH ₃) ₂ |
| R ³ | CH ₂ O(C ₆ H ₅) | OCH ₂ CH(CH ₃) ₂ |
| (CH ₂) ₃ CH ₃ | CH ₂ SCH ₂ CH(CH ₃) ₂ | NHCH ₂ CH(CH ₃) ₂ |
| CH ₂ CH(CH ₃) ₂ | CH ₂ NHCH ₂ CH(CH ₃) ₂ | C ₆ H ₅ |
| CH ₂ CH ₂ CH(CH ₃) ₂ | OCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ |
| CH ₂ -cyclopentyl | NHCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ |
| CH ₂ O(C ₆ H ₅) | C ₆ H ₅ | |
| CH ₂ SCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ | R ¹ =OCF ₂ H, R ² =CO ₂ CH ₃ |
| CH ₂ NHCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ | R ³ |
| OCH ₂ CH(CH ₃) ₂ | | (CH ₂) ₃ CH ₃ |
| NHCH ₂ CH(CH ₃) ₂ | | CH ₂ CH(CH ₃) ₂ |
| C ₆ H ₅ | | CH ₂ CH ₂ CH(CH ₃) ₂ |

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|---|---|---|
| CH ₂ -cyclopentyl | NHCH ₂ CH(CH ₃) ₂ | R ¹ =OCH ₃ , R ² =CO ₂ CH ₂ CH ₃ |
| CH ₂ O(C ₆ H ₅) | C ₆ H ₅ | R ³ |
| CH ₂ SCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ | (CH ₂) ₃ CH ₃ |
| CH ₂ NHCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ | CH ₂ CH(CH ₃) ₂ |
| OCH ₂ CH(CH ₃) ₂ | R ¹ =Br, R ² =CO ₂ CH ₂ CH ₃ | CH ₂ CH ₂ CH(CH ₃) ₂ |
| NHCH ₂ CH(CH ₃) ₂ | R ³ | CH ₂ -cyclopentyl |
| C ₆ H ₅ | (CH ₂) ₃ CH ₃ | CH ₂ O(C ₆ H ₅) |
| 3CF ₃ -C ₆ H ₄ | CH ₂ CH(CH ₃) ₂ | CH ₂ SCH ₂ CH(CH ₃) ₂ |
| 2Cl-C ₆ H ₄ | CH ₂ CH ₂ CH(CH ₃) ₂ | CH ₂ NHCH ₂ CH(CH ₃) ₂ |
| R ¹ =NO ₂ , R ² =CO ₂ CH ₃ | CH ₂ -cyclopentyl | OCH ₂ CH(CH ₃) ₂ |
| R ³ | CH ₂ O(C ₆ H ₅) | NHCH ₂ CH(CH ₃) ₂ |
| (CH ₂) ₃ CH ₃ | CH ₂ SCH ₂ CH(CH ₃) ₂ | C ₆ H ₅ |
| CH ₂ CH(CH ₃) ₂ | CH ₂ NHCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ |
| CH ₂ CH ₂ CH(CH ₃) ₂ | OCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ |
| CH ₂ -cyclopentyl | NHCH ₂ CH(CH ₃) ₂ | R ¹ =OCF ₃ , R ² =CO ₂ CH ₂ CH ₃ |
| CH ₂ O(C ₆ H ₅) | C ₆ H ₅ | R ³ |
| CH ₂ SCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ | (CH ₂) ₃ CH ₃ |
| CH ₂ NHCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ | CH ₂ CH(CH ₃) ₂ |
| OCH ₂ CH(CH ₃) ₂ | R ¹ =I, R ² =CO ₂ CH ₂ CH ₃ | CH ₂ CH ₂ CH(CH ₃) ₂ |
| NHCH ₂ CH(CH ₃) ₂ | R ³ | CH ₂ -cyclopentyl |
| C ₆ H ₅ | (CH ₂) ₃ CH ₃ | CH ₂ O(C ₆ H ₅) |
| 3CF ₃ -C ₆ H ₄ | CH ₂ CH(CH ₃) ₂ | CH ₂ SCH ₂ CH(CH ₃) ₂ |
| 2Cl-C ₆ H ₄ | CH ₂ CH ₂ CH(CH ₃) ₂ | CH ₂ NHCH ₂ CH(CH ₃) ₂ |
| R ¹ =Cl, R ² =CO ₂ CH ₂ CH ₃ | CH ₂ -cyclopentyl | OCH ₂ CH(CH ₃) ₂ |
| R ³ | CH ₂ O(C ₆ H ₅) | NHCH ₂ CH(CH ₃) ₂ |
| (CH ₂) ₃ CH ₃ | CH ₂ SCH ₂ CH(CH ₃) ₂ | C ₆ H ₅ |
| CH ₂ CH(CH ₃) ₂ | CH ₂ NHCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ |
| CH ₂ CH ₂ CH(CH ₃) ₂ | OCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ |
| CH ₂ -cyclopentyl | NHCH ₂ CH(CH ₃) ₂ | R ¹ =OCF ₂ H, R ² =CO ₂ CH ₂ CH ₃ |
| CH ₂ O(C ₆ H ₅) | C ₆ H ₅ | R ³ |
| CH ₂ SCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ | (CH ₂) ₃ CH ₃ |
| CH ₂ NHCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ | CH ₂ CH(CH ₃) ₂ |
| OCH ₂ CH(CH ₃) ₂ | | CH ₂ CH ₂ CH(CH ₃) ₂ |

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|---|---|---|
| CH ₂ -cyclopentyl | NHCH ₂ CH(CH ₃) ₂ | R ¹ =OCH ₃ , R ² =CHO |
| CH ₂ O(C ₆ H ₅) | C ₆ H ₅ | R ³ |
| CH ₂ SCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ | (CH ₂) ₃ CH ₃ |
| CH ₂ NHCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ | CH ₂ CH(CH ₃) ₂ |
| OCH ₂ CH(CH ₃) ₂ | | CH ₂ CH ₂ CH(CH ₃) ₂ |
| NHCH ₂ CH(CH ₃) ₂ | R ¹ =Br, R ² =CHO | CH ₂ -cyclopentyl |
| C ₆ H ₅ | R ³ | CH ₂ O(C ₆ H ₅) |
| 3CF ₃ -C ₆ H ₄ | (CH ₂) ₃ CH ₃ | CH ₂ SCH ₂ CH(CH ₃) ₂ |
| 2Cl-C ₆ H ₄ | CH ₂ CH(CH ₃) ₂ | CH ₂ NHCH ₂ CH(CH ₃) ₂ |
| | CH ₂ CH ₂ CH(CH ₃) ₂ | OCH ₂ CH(CH ₃) ₂ |
| R ¹ =NO ₂ , R ² =CO ₂ CH ₂ CH ₃ | CH ₂ -cyclopentyl | NHCH ₂ CH(CH ₃) ₂ |
| R ³ | CH ₂ O(C ₆ H ₅) | C ₆ H ₅ |
| (CH ₂) ₃ CH ₃ | CH ₂ SCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ |
| CH ₂ CH(CH ₃) ₂ | CH ₂ NHCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ |
| CH ₂ CH ₂ CH(CH ₃) ₂ | OCH ₂ CH(CH ₃) ₂ | |
| CH ₂ -cyclopentyl | NHCH ₂ CH(CH ₃) ₂ | R ¹ =OCF ₃ , R ² =CHO |
| CH ₂ O(C ₆ H ₅) | C ₆ H ₅ | R ³ |
| CH ₂ SCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ | (CH ₂) ₃ CH ₃ |
| CH ₂ NHCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ | CH ₂ CH(CH ₃) ₂ |
| OCH ₂ CH(CH ₃) ₂ | | CH ₂ CH ₂ CH(CH ₃) ₂ |
| NHCH ₂ CH(CH ₃) ₂ | R ¹ =I, R ² =CHO | CH ₂ -cyclopentyl |
| C ₆ H ₅ | R ³ | CH ₂ O(C ₆ H ₅) |
| 3CF ₃ -C ₆ H ₄ | (CH ₂) ₃ CH ₃ | CH ₂ SCH ₂ CH(CH ₃) ₂ |
| 2Cl-C ₆ H ₄ | CH ₂ CH(CH ₃) ₂ | CH ₂ NHCH ₂ CH(CH ₃) ₂ |
| | CH ₂ CH ₂ CH(CH ₃) ₂ | OCH ₂ CH(CH ₃) ₂ |
| R ¹ =Cl, R ² =CHO | CH ₂ -cyclopentyl | NHCH ₂ CH(CH ₃) ₂ |
| R ³ | CH ₂ O(C ₆ H ₅) | C ₆ H ₅ |
| (CH ₂) ₃ CH ₃ | CH ₂ SCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ |
| CH ₂ CH(CH ₃) ₂ | CH ₂ NHCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ |
| CH ₂ CH ₂ CH(CH ₃) ₂ | OCH ₂ CH(CH ₃) ₂ | |
| CH ₂ -cyclopentyl | NHCH ₂ CH(CH ₃) ₂ | R ¹ =OCF ₂ H, R ² =CHO |
| CH ₂ O(C ₆ H ₅) | C ₆ H ₅ | R ³ |
| CH ₂ SCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ | (CH ₂) ₃ CH ₃ |
| CH ₂ NHCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ | CH ₂ CH(CH ₃) ₂ |
| OCH ₂ CH(CH ₃) ₂ | | CH ₂ CH ₂ CH(CH ₃) ₂ |

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| CH ₂ -cyclopentyl | C ₆ H ₅ | R ¹ =OCH ₃ , R ² =C≡CH |
| CH ₂ O (C ₆ H ₅) | 3CF ₃ -C ₆ H ₄ | R ³ |
| CH ₂ SCH ₂ CH (CH ₃) ₂ | 2Cl-C ₆ H ₄ | (CH ₂) ₃ CH ₃ |
| CH ₂ NHCH ₂ CH (CH ₃) ₂ | | CH ₂ CH (CH ₃) ₂ |
| OCH ₂ CH (CH ₃) ₂ | R ¹ =Br, R ² =C≡CH | CH ₂ CH ₂ CH (CH ₃) ₂ |
| NHCH ₂ CH (CH ₃) ₂ | R ³ | CH ₂ -cyclopentyl |
| C ₆ H ₅ | (CH ₂) ₃ CH ₃ | CH ₂ O (C ₆ H ₅) |
| 3CF ₃ -C ₆ H ₄ | CH ₂ CH (CH ₃) ₂ | CH ₂ SCH ₂ CH (CH ₃) ₂ |
| 2Cl-C ₆ H ₄ | CH ₂ CH ₂ CH (CH ₃) ₂ | CH ₂ NHCH ₂ CH (CH ₃) ₂ |
| | CH ₂ -cyclopentyl | OCH ₂ CH (CH ₃) ₂ |
| R ¹ =NO ₂ , R ² =CHO | CH ₂ O (C ₆ H ₅) | NHCH ₂ CH (CH ₃) ₂ |
| R ³ | CH ₂ SCH ₂ CH (CH ₃) ₂ | C ₆ H ₅ |
| (CH ₂) ₃ CH ₃ | CH ₂ NHCH ₂ CH (CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ |
| CH ₂ CH (CH ₃) ₂ | OCH ₂ CH (CH ₃) ₂ | 2Cl-C ₆ H ₄ |
| CH ₂ CH ₂ CH (CH ₃) ₂ | NHCH ₂ CH (CH ₃) ₂ | |
| CH ₂ -cyclopentyl | C ₆ H ₅ | R ¹ =OCF ₃ , R ² =C≡CH |
| CH ₂ O (C ₆ H ₅) | 3CF ₃ -C ₆ H ₄ | R ³ |
| CH ₂ SCH ₂ CH (CH ₃) ₂ | 2Cl-C ₆ H ₄ | (CH ₂) ₃ CH ₃ |
| CH ₂ NHCH ₂ CH (CH ₃) ₂ | | CH ₂ CH (CH ₃) ₂ |
| OCH ₂ CH (CH ₃) ₂ | R ¹ =I, R ² =C≡CH | CH ₂ CH ₂ CH (CH ₃) ₂ |
| NHCH ₂ CH (CH ₃) ₂ | R ³ | CH ₂ -cyclopentyl |
| C ₆ H ₅ | (CH ₂) ₃ CH ₃ | CH ₂ O (C ₆ H ₅) |
| 3CF ₃ -C ₆ H ₄ | CH ₂ CH (CH ₃) ₂ | CH ₂ SCH ₂ CH (CH ₃) ₂ |
| 2Cl-C ₆ H ₄ | CH ₂ CH ₂ CH (CH ₃) ₂ | CH ₂ NHCH ₂ CH (CH ₃) ₂ |
| | CH ₂ -cyclopentyl | OCH ₂ CH (CH ₃) ₂ |
| R ¹ =Cl, R ² =C≡CH | CH ₂ O (C ₆ H ₅) | NHCH ₂ CH (CH ₃) ₂ |
| R ³ | CH ₂ SCH ₂ CH (CH ₃) ₂ | C ₆ H ₅ |
| (CH ₂) ₃ CH ₃ | CH ₂ NHCH ₂ CH (CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ |
| CH ₂ CH (CH ₃) ₂ | OCH ₂ CH (CH ₃) ₂ | 2Cl-C ₆ H ₄ |
| CH ₂ CH ₂ CH (CH ₃) ₂ | NHCH ₂ CH (CH ₃) ₂ | |
| CH ₂ -cyclopentyl | C ₆ H ₅ | R ¹ =OCF ₂ H, R ² =C≡CH |
| CH ₂ O (C ₆ H ₅) | 3CF ₃ -C ₆ H ₄ | R ³ |
| CH ₂ SCH ₂ CH (CH ₃) ₂ | 2Cl-C ₆ H ₄ | (CH ₂) ₃ CH ₃ |
| CH ₂ NHCH ₂ CH (CH ₃) ₂ | | CH ₂ CH (CH ₃) ₂ |
| OCH ₂ CH (CH ₃) ₂ | | CH ₂ CH ₂ CH (CH ₃) ₂ |
| NHCH ₂ CH (CH ₃) ₂ | | CH ₂ CH ₂ CH (CH ₃) ₂ |

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|---|---|---|
| CH ₂ -cyclopentyl | NHCH ₂ CH(CH ₃) ₂ | R ¹ =OCH ₃ , R ² =CH=N-OH |
| CH ₂ O(C ₆ H ₅) | C ₆ H ₅ | R ³ |
| CH ₂ SCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ | (CH ₂) ₃ CH ₃ |
| CH ₂ NHCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ | CH ₂ CH(CH ₃) ₂ |
| OCH ₂ CH(CH ₃) ₂ | | CH ₂ CH ₂ CH(CH ₃) ₂ |
| NHCH ₂ CH(CH ₃) ₂ | R ¹ =Br, R ² =CH=N-OH | CH ₂ -cyclopentyl |
| C ₆ H ₅ | R ³ | CH ₂ O(C ₆ H ₅) |
| 3CF ₃ -C ₆ H ₄ | (CH ₂) ₃ CH ₃ | CH ₂ SCH ₂ CH(CH ₃) ₂ |
| 2Cl-C ₆ H ₄ | CH ₂ CH(CH ₃) ₂ | CH ₂ NHCH ₂ CH(CH ₃) ₂ |
| | CH ₂ CH ₂ CH(CH ₃) ₂ | OCH ₂ CH(CH ₃) ₂ |
| R ¹ =NO ₂ , R ² =C≡CH | CH ₂ -cyclopentyl | NHCH ₂ CH(CH ₃) ₂ |
| R ³ | CH ₂ O(C ₆ H ₅) | C ₆ H ₅ |
| (CH ₂) ₃ CH ₃ | CH ₂ SCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ |
| CH ₂ CH(CH ₃) ₂ | CH ₂ NHCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ |
| CH ₂ CH ₂ CH(CH ₃) ₂ | OCH ₂ CH(CH ₃) ₂ | |
| CH ₂ -cyclopentyl | NHCH ₂ CH(CH ₃) ₂ | R ¹ =OCF ₃ , R ² =CH=N-OH |
| CH ₂ O(C ₆ H ₅) | C ₆ H ₅ | R ³ |
| CH ₂ SCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ | (CH ₂) ₃ CH ₃ |
| CH ₂ NHCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ | CH ₂ CH(CH ₃) ₂ |
| OCH ₂ CH(CH ₃) ₂ | | CH ₂ CH ₂ CH(CH ₃) ₂ |
| NHCH ₂ CH(CH ₃) ₂ | R ¹ =I, R ² =CH=N-OH | CH ₂ -cyclopentyl |
| C ₆ H ₅ | R ³ | CH ₂ O(C ₆ H ₅) |
| 3CF ₃ -C ₆ H ₄ | (CH ₂) ₃ CH ₃ | CH ₂ SCH ₂ CH(CH ₃) ₂ |
| 2Cl-C ₆ H ₄ | CH ₂ CH(CH ₃) ₂ | CH ₂ NHCH ₂ CH(CH ₃) ₂ |
| | CH ₂ CH ₂ CH(CH ₃) ₂ | OCH ₂ CH(CH ₃) ₂ |
| R ¹ =Cl, R ² =CH=N-OH | CH ₂ -cyclopentyl | NHCH ₂ CH(CH ₃) ₂ |
| R ³ | CH ₂ O(C ₆ H ₅) | C ₆ H ₅ |
| (CH ₂) ₃ CH ₃ | CH ₂ SCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ |
| CH ₂ CH(CH ₃) ₂ | CH ₂ NHCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ |
| CH ₂ CH ₂ CH(CH ₃) ₂ | OCH ₂ CH(CH ₃) ₂ | |
| CH ₂ -cyclopentyl | NHCH ₂ CH(CH ₃) ₂ | R ¹ =OCF ₂ H, R ² =CH=N-OH |
| CH ₂ O(C ₆ H ₅) | C ₆ H ₅ | R ³ |
| CH ₂ SCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ | (CH ₂) ₃ CH ₃ |
| CH ₂ NHCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ | CH ₂ CH(CH ₃) ₂ |
| OCH ₂ CH(CH ₃) ₂ | | CH ₂ CH ₂ CH(CH ₃) ₂ |

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|---|---|---|
| CH ₂ -cyclopentyl | NHCH ₂ CH(CH ₃) ₂ | R ¹ =OCH ₃ , R ² =CH=N-OCH ₃ |
| CH ₂ O(C ₆ H ₅) | C ₆ H ₅ | R ³ |
| CH ₂ SCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ | (CH ₂) ₃ CH ₃ |
| CH ₂ NHCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ | CH ₂ CH(CH ₃) ₂ |
| OCH ₂ CH(CH ₃) ₂ | | CH ₂ CH ₂ CH(CH ₃) ₂ |
| NHCH ₂ CH(CH ₃) ₂ | R ¹ =Br, R ² =CH=N-OCH ₃ | CH ₂ -cyclopentyl |
| C ₆ H ₅ | R ³ | CH ₂ O(C ₆ H ₅) |
| 3CF ₃ -C ₆ H ₄ | (CH ₂) ₃ CH ₃ | CH ₂ SCH ₂ CH(CH ₃) ₂ |
| 2Cl-C ₆ H ₄ | CH ₂ CH(CH ₃) ₂ | CH ₂ NHCH ₂ CH(CH ₃) ₂ |
| | CH ₂ CH ₂ CH(CH ₃) ₂ | OCH ₂ CH(CH ₃) ₂ |
| R ¹ =NO ₂ , R ² =CH=N-OH | CH ₂ -cyclopentyl | NHCH ₂ CH(CH ₃) ₂ |
| R ³ | CH ₂ O(C ₆ H ₅) | C ₆ H ₅ |
| (CH ₂) ₃ CH ₃ | CH ₂ SCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ |
| CH ₂ CH(CH ₃) ₂ | CH ₂ NHCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ |
| CH ₂ CH ₂ CH(CH ₃) ₂ | OCH ₂ CH(CH ₃) ₂ | |
| CH ₂ -cyclopentyl | NHCH ₂ CH(CH ₃) ₂ | R ¹ =OCF ₃ , R ² =CH=N-OCH ₃ |
| CH ₂ O(C ₆ H ₅) | C ₆ H ₅ | R ³ |
| CH ₂ SCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ | (CH ₂) ₃ CH ₃ |
| CH ₂ NHCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ | CH ₂ CH(CH ₃) ₂ |
| OCH ₂ CH(CH ₃) ₂ | | CH ₂ CH ₂ CH(CH ₃) ₂ |
| NHCH ₂ CH(CH ₃) ₂ | R ¹ =I, R ² =CH=N-OCH ₃ | CH ₂ -cyclopentyl |
| C ₆ H ₅ | R ³ | CH ₂ O(C ₆ H ₅) |
| 3CF ₃ -C ₆ H ₄ | (CH ₂) ₃ CH ₃ | CH ₂ SCH ₂ CH(CH ₃) ₂ |
| 2Cl-C ₆ H ₄ | CH ₂ CH(CH ₃) ₂ | CH ₂ NHCH ₂ CH(CH ₃) ₂ |
| | CH ₂ CH ₂ CH(CH ₃) ₂ | OCH ₂ CH(CH ₃) ₂ |
| R ¹ =Cl, R ² =CH=N-OCH ₃ | CH ₂ -cyclopentyl | NHCH ₂ CH(CH ₃) ₂ |
| R ³ | CH ₂ O(C ₆ H ₅) | C ₆ H ₅ |
| (CH ₂) ₃ CH ₃ | CH ₂ SCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ |
| CH ₂ CH(CH ₃) ₂ | CH ₂ NHCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ |
| CH ₂ CH ₂ CH(CH ₃) ₂ | OCH ₂ CH(CH ₃) ₂ | |
| CH ₂ -cyclopentyl | NHCH ₂ CH(CH ₃) ₂ | R ¹ =OCF ₂ H, R ² =CH=N-OCH ₃ |
| CH ₂ O(C ₆ H ₅) | C ₆ H ₅ | R ³ |
| CH ₂ SCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ | (CH ₂) ₃ CH ₃ |
| CH ₂ NHCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ | CH ₂ CH(CH ₃) ₂ |
| OCH ₂ CH(CH ₃) ₂ | | CH ₂ CH ₂ CH(CH ₃) ₂ |

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|---|---|---|
| CH ₂ -cyclopentyl | NHCH ₂ CH(CH ₃) ₂ | R ¹ =OCH ₃ , |
| CH ₂ O(C ₆ H ₅) | C ₆ H ₅ | R ² =CH=N-OCH ₂ CH ₃ |
| CH ₂ SCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ | R ³ |
| CH ₂ NHCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ | (CH ₂) ₃ CH ₃ |
| OCH ₂ CH(CH ₃) ₂ | | CH ₂ CH(CH ₃) ₂ |
| NHCH ₂ CH(CH ₃) ₂ | R ¹ =Br, R ² =CH=N-OCH ₂ CH ₃ | CH ₂ CH ₂ CH(CH ₃) ₂ |
| C ₆ H ₅ | R ³ | CH ₂ -cyclopentyl |
| 3CF ₃ -C ₆ H ₄ | (CH ₂) ₃ CH ₃ | CH ₂ O(C ₆ H ₅) |
| 2Cl-C ₆ H ₄ | CH ₂ CH(CH ₃) ₂ | CH ₂ SCH ₂ CH(CH ₃) ₂ |
| | CH ₂ CH ₂ CH(CH ₃) ₂ | CH ₂ NHCH ₂ CH(CH ₃) ₂ |
| R ¹ =NO ₂ , R ² =CH=N-OCH ₃ | CH ₂ -cyclopentyl | OCH ₂ CH(CH ₃) ₂ |
| R ³ | CH ₂ O(C ₆ H ₅) | NHCH ₂ CH(CH ₃) ₂ |
| (CH ₂) ₃ CH ₃ | CH ₂ SCH ₂ CH(CH ₃) ₂ | C ₆ H ₅ |
| CH ₂ CH(CH ₃) ₂ | CH ₂ NHCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ |
| CH ₂ CH ₂ CH(CH ₃) ₂ | OCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ |
| CH ₂ -cyclopentyl | NHCH ₂ CH(CH ₃) ₂ | |
| CH ₂ O(C ₆ H ₅) | C ₆ H ₅ | R ¹ =OCF ₃ , |
| CH ₂ SCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ | R ² =CH=N-OCH ₂ CH ₃ |
| CH ₂ NHCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ | R ³ |
| OCH ₂ CH(CH ₃) ₂ | | (CH ₂) ₃ CH ₃ |
| NHCH ₂ CH(CH ₃) ₂ | R ¹ =I, R ² =CH=N-OCH ₂ CH ₃ | CH ₂ CH(CH ₃) ₂ |
| C ₆ H ₅ | R ³ | CH ₂ CH ₂ CH(CH ₃) ₂ |
| 3CF ₃ -C ₆ H ₄ | (CH ₂) ₃ CH ₃ | CH ₂ -cyclopentyl |
| 2Cl-C ₆ H ₄ | CH ₂ CH(CH ₃) ₂ | CH ₂ O(C ₆ H ₅) |
| | CH ₂ CH ₂ CH(CH ₃) ₂ | CH ₂ SCH ₂ CH(CH ₃) ₂ |
| R ¹ =Cl, R ² =CH=N-OCH ₂ CH ₃ | CH ₂ -cyclopentyl | CH ₂ NHCH ₂ CH(CH ₃) ₂ |
| R ³ | CH ₂ O(C ₆ H ₅) | OCH ₂ CH(CH ₃) ₂ |
| (CH ₂) ₃ CH ₃ | CH ₂ SCH ₂ CH(CH ₃) ₂ | NHCH ₂ CH(CH ₃) ₂ |
| CH ₂ CH(CH ₃) ₂ | CH ₂ NHCH ₂ CH(CH ₃) ₂ | C ₆ H ₅ |
| CH ₂ CH ₂ CH(CH ₃) ₂ | OCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ |
| CH ₂ -cyclopentyl | NHCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ |
| CH ₂ O(C ₆ H ₅) | C ₆ H ₅ | |
| CH ₂ SCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ | R ¹ =OCF ₂ H, |
| CH ₂ NHCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ | R ² =CH=N-OCH ₂ CH ₃ |
| OCH ₂ CH(CH ₃) ₂ | | R ³ |
| | | (CH ₂) ₃ CH ₃ |

| | | |
|---|---|---|
| CH ₂ CH(CH ₃) ₂ | CH ₂ SCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ |
| CH ₂ CH ₂ CH(CH ₃) ₂ | CH ₂ NHCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ |
| CH ₂ -cyclopentyl | OCH ₂ CH(CH ₃) ₂ | R ¹ =OCH ₃ , |
| CH ₂ O(C ₆ H ₅) | NHCH ₂ CH(CH ₃) ₂ | R ² =C(NH ₂)=N-OH |
| CH ₂ SCH ₂ CH(CH ₃) ₂ | C ₆ H ₅ | R ³ |
| CH ₂ NHCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ | (CH ₂) ₃ CH ₃ |
| OCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ | CH ₂ CH(CH ₃) ₂ |
| NHCH ₂ CH(CH ₃) ₂ | R ¹ =Br, R ² =C(NH ₂)=N-OH | CH ₂ CH ₂ CH(CH ₃) ₂ |
| C ₆ H ₅ | R ³ | CH ₂ -cyclopentyl |
| 3CF ₃ -C ₆ H ₄ | (CH ₂) ₃ CH ₃ | CH ₂ O(C ₆ H ₅) |
| 2Cl-C ₆ H ₄ | CH ₂ CH(CH ₃) ₂ | CH ₂ SCH ₂ CH(CH ₃) ₂ |
| R ¹ =NO ₂ , | CH ₂ CH ₂ CH(CH ₃) ₂ | CH ₂ NHCH ₂ CH(CH ₃) ₂ |
| R ² =CH=N-OCH ₂ CH ₃ | CH ₂ -cyclopentyl | OCH ₂ CH(CH ₃) ₂ |
| R ³ | CH ₂ O(C ₆ H ₅) | NHCH ₂ CH(CH ₃) ₂ |
| (CH ₂) ₃ CH ₃ | CH ₂ SCH ₂ CH(CH ₃) ₂ | C ₆ H ₅ |
| CH ₂ CH(CH ₃) ₂ | CH ₂ NHCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ |
| CH ₂ CH ₂ CH(CH ₃) ₂ | OCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ |
| CH ₂ -cyclopentyl | NHCH ₂ CH(CH ₃) ₂ | R ¹ =OCF ₃ , |
| CH ₂ O(C ₆ H ₅) | C ₆ H ₅ | R ² =C(NH ₂)=N-OH |
| CH ₂ SCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ | R ³ |
| CH ₂ NHCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ | (CH ₂) ₃ CH ₃ |
| OCH ₂ CH(CH ₃) ₂ | R ¹ =I, R ² =C(NH ₂)=N-OH | CH ₂ CH(CH ₃) ₂ |
| NHCH ₂ CH(CH ₃) ₂ | R ³ | CH ₂ CH ₂ CH(CH ₃) ₂ |
| C ₆ H ₅ | (CH ₂) ₃ CH ₃ | CH ₂ -cyclopentyl |
| 3CF ₃ -C ₆ H ₄ | CH ₂ CH(CH ₃) ₂ | CH ₂ O(C ₆ H ₅) |
| 2Cl-C ₆ H ₄ | CH ₂ CH ₂ CH(CH ₃) ₂ | CH ₂ SCH ₂ CH(CH ₃) ₂ |
| R ¹ =Cl, R ² =C(NH ₂)=N-OH | CH ₂ -cyclopentyl | CH ₂ NHCH ₂ CH(CH ₃) ₂ |
| R ³ | CH ₂ O(C ₆ H ₅) | OCH ₂ CH(CH ₃) ₂ |
| (CH ₂) ₃ CH ₃ | CH ₂ SCH ₂ CH(CH ₃) ₂ | NHCH ₂ CH(CH ₃) ₂ |
| CH ₂ CH(CH ₃) ₂ | CH ₂ NHCH ₂ CH(CH ₃) ₂ | C ₆ H ₅ |
| CH ₂ CH ₂ CH(CH ₃) ₂ | OCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ |
| CH ₂ -cyclopentyl | NHCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ |
| CH ₂ O(C ₆ H ₅) | C ₆ H ₅ | |

| | | |
|---|---|---|
| $R^1 = \text{OCF}_2\text{H},$ | $R^1 = \text{Cl},$ | $R^1 = \text{I},$ |
| $R^2 = \text{C}(\text{NH}_2) = \text{N}-\text{OH}$ | $R^2 = \underset{\text{Cl}}{\overset{ }{\text{C}}}=\text{N}-\text{OCH}_3$ | $R^2 = \underset{\text{Cl}}{\overset{ }{\text{C}}}=\text{N}-\text{OCH}_3$ |
| R^3 | R^3 | R^3 |
| $(\text{CH}_2)_3\text{CH}_3$ | $(\text{CH}_2)_3\text{CH}_3$ | $(\text{CH}_2)_3\text{CH}_3$ |
| $\text{CH}_2\text{CH}(\text{CH}_3)_2$ | $\text{CH}_2\text{CH}(\text{CH}_3)_2$ | $\text{CH}_2\text{CH}(\text{CH}_3)_2$ |
| $\text{CH}_2\text{CH}_2\text{CH}(\text{CH}_3)_2$ | $\text{CH}_2\text{CH}_2\text{CH}(\text{CH}_3)_2$ | $\text{CH}_2\text{CH}_2\text{CH}(\text{CH}_3)_2$ |
| $\text{CH}_2\text{-cyclopentyl}$ | $\text{CH}_2\text{-cyclopentyl}$ | $\text{CH}_2\text{-cyclopentyl}$ |
| $\text{CH}_2\text{O}(\text{C}_6\text{H}_5)$ | $\text{CH}_2\text{O}(\text{C}_6\text{H}_5)$ | $\text{CH}_2\text{O}(\text{C}_6\text{H}_5)$ |
| $\text{CH}_2\text{SCH}_2\text{CH}(\text{CH}_3)_2$ | $\text{CH}_2\text{SCH}_2\text{CH}(\text{CH}_3)_2$ | $\text{CH}_2\text{SCH}_2\text{CH}(\text{CH}_3)_2$ |
| $\text{CH}_2\text{NHCH}_2\text{CH}(\text{CH}_3)_2$ | $\text{CH}_2\text{NHCH}_2\text{CH}(\text{CH}_3)_2$ | $\text{CH}_2\text{NHCH}_2\text{CH}(\text{CH}_3)_2$ |
| $\text{OCH}_2\text{CH}(\text{CH}_3)_2$ | $\text{OCH}_2\text{CH}(\text{CH}_3)_2$ | $\text{OCH}_2\text{CH}(\text{CH}_3)_2$ |
| $\text{NHCH}_2\text{CH}(\text{CH}_3)_2$ | $\text{NHCH}_2\text{CH}(\text{CH}_3)_2$ | $\text{NHCH}_2\text{CH}(\text{CH}_3)_2$ |
| C_6H_5 | C_6H_5 | C_6H_5 |
| $3\text{CF}_3\text{-C}_6\text{H}_4$ | $3\text{CF}_3\text{-C}_6\text{H}_4$ | $3\text{CF}_3\text{-C}_6\text{H}_4$ |
| $2\text{Cl-C}_6\text{H}_4$ | $2\text{Cl-C}_6\text{H}_4$ | $2\text{Cl-C}_6\text{H}_4$ |
| $R^1 = \text{NO}_2, R^2 = \text{C}(\text{NH}_2) = \text{N}-\text{OH}$ | $R^1 = \text{Br},$ | $R^1 = \text{OCH}_3,$ |
| R^3 | $R^2 = \underset{\text{Cl}}{\overset{ }{\text{C}}}=\text{N}-\text{OCH}_3$ | $R^2 = \underset{\text{Cl}}{\overset{ }{\text{C}}}=\text{N}-\text{OCH}_3$ |
| $(\text{CH}_2)_3\text{CH}_3$ | R^3 | R^3 |
| $\text{CH}_2\text{CH}(\text{CH}_3)_2$ | $(\text{CH}_2)_3\text{CH}_3$ | $(\text{CH}_2)_3\text{CH}_3$ |
| $\text{CH}_2\text{CH}_2\text{CH}(\text{CH}_3)_2$ | $\text{CH}_2\text{CH}(\text{CH}_3)_2$ | $\text{CH}_2\text{CH}(\text{CH}_3)_2$ |
| $\text{CH}_2\text{-cyclopentyl}$ | $\text{CH}_2\text{CH}_2\text{CH}(\text{CH}_3)_2$ | $\text{CH}_2\text{CH}_2\text{CH}(\text{CH}_3)_2$ |
| $\text{CH}_2\text{O}(\text{C}_6\text{H}_5)$ | $\text{CH}_2\text{-cyclopentyl}$ | $\text{CH}_2\text{-cyclopentyl}$ |
| $\text{CH}_2\text{SCH}_2\text{CH}(\text{CH}_3)_2$ | $\text{CH}_2\text{O}(\text{C}_6\text{H}_5)$ | $\text{CH}_2\text{O}(\text{C}_6\text{H}_5)$ |
| $\text{CH}_2\text{NHCH}_2\text{CH}(\text{CH}_3)_2$ | $\text{CH}_2\text{SCH}_2\text{CH}(\text{CH}_3)_2$ | $\text{CH}_2\text{SCH}_2\text{CH}(\text{CH}_3)_2$ |
| $\text{OCH}_2\text{CH}(\text{CH}_3)_2$ | $\text{CH}_2\text{NHCH}_2\text{CH}(\text{CH}_3)_2$ | $\text{CH}_2\text{NHCH}_2\text{CH}(\text{CH}_3)_2$ |
| $\text{NHCH}_2\text{CH}(\text{CH}_3)_2$ | $\text{OCH}_2\text{CH}(\text{CH}_3)_2$ | $\text{OCH}_2\text{CH}(\text{CH}_3)_2$ |
| C_6H_5 | $\text{NHCH}_2\text{CH}(\text{CH}_3)_2$ | $\text{NHCH}_2\text{CH}(\text{CH}_3)_2$ |
| $3\text{CF}_3\text{-C}_6\text{H}_4$ | C_6H_5 | C_6H_5 |
| $2\text{Cl-C}_6\text{H}_4$ | $3\text{CF}_3\text{-C}_6\text{H}_4$ | $3\text{CF}_3\text{-C}_6\text{H}_4$ |
| | $2\text{Cl-C}_6\text{H}_4$ | $2\text{Cl-C}_6\text{H}_4$ |

| | | |
|---|---|---|
| CH ₂ NHCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ | R ¹ =Br, R ² =CH ₂ CN |
| OCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ | R ³ |
| NHCH ₂ CH(CH ₃) ₂ | | (CH ₂) ₃ CH ₃ |
| C ₆ H ₅ | R ¹ =NO ₂ , R ² =C(CN)=N-OH | CH ₂ CH(CH ₃) ₂ |
| 3CF ₃ -C ₆ H ₄ | R ³ | CH ₂ CH ₂ CH(CH ₃) ₂ |
| 2Cl-C ₆ H ₄ | (CH ₂) ₃ CH ₃ | CH ₂ -cyclopentyl |
| | CH ₂ CH(CH ₃) ₂ | CH ₂ O(C ₆ H ₅) |
| R ¹ =OCF ₃ , R ² =C(CN)=N-OH | CH ₂ CH ₂ CH(CH ₃) ₂ | CH ₂ SCH ₂ CH(CH ₃) ₂ |
| R ³ | CH ₂ -cyclopentyl | CH ₂ NHCH ₂ CH(CH ₃) ₂ |
| (CH ₂) ₃ CH ₃ | CH ₂ O(C ₆ H ₅) | OCH ₂ CH(CH ₃) ₂ |
| CH ₂ CH(CH ₃) ₂ | CH ₂ SCH ₂ CH(CH ₃) ₂ | NHCH ₂ CH(CH ₃) ₂ |
| CH ₂ CH ₂ CH(CH ₃) ₂ | CH ₂ NHCH ₂ CH(CH ₃) ₂ | C ₆ H ₅ |
| CH ₂ -cyclopentyl | OCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ |
| CH ₂ O(C ₆ H ₅) | NHCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ |
| CH ₂ SCH ₂ CH(CH ₃) ₂ | C ₆ H ₅ | |
| CH ₂ NHCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ | R ¹ =I, R ² =CH ₂ CN |
| OCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ | R ³ |
| NHCH ₂ CH(CH ₃) ₂ | | (CH ₂) ₃ CH ₃ |
| C ₆ H ₅ | R ¹ =Cl, R ² =CH ₂ CN | CH ₂ CH(CH ₃) ₂ |
| 3CF ₃ -C ₆ H ₄ | R ³ | CH ₂ CH ₂ CH(CH ₃) ₂ |
| 2Cl-C ₆ H ₄ | (CH ₂) ₃ CH ₃ | CH ₂ -cyclopentyl |
| | CH ₂ CH(CH ₃) ₂ | CH ₂ O(C ₆ H ₅) |
| R ¹ =OCF ₂ H, | CH ₂ CH ₂ CH(CH ₃) ₂ | CH ₂ SCH ₂ CH(CH ₃) ₂ |
| R ² =C(CN)=N-OH | CH ₂ -cyclopentyl | CH ₂ NHCH ₂ CH(CH ₃) ₂ |
| R ³ | CH ₂ O(C ₆ H ₅) | OCH ₂ CH(CH ₃) ₂ |
| (CH ₂) ₃ CH ₃ | CH ₂ SCH ₂ CH(CH ₃) ₂ | NHCH ₂ CH(CH ₃) ₂ |
| CH ₂ CH(CH ₃) ₂ | CH ₂ NHCH ₂ CH(CH ₃) ₂ | C ₆ H ₅ |
| CH ₂ CH ₂ CH(CH ₃) ₂ | OCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ |
| CH ₂ -cyclopentyl | NHCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ |
| CH ₂ O(C ₆ H ₅) | C ₆ H ₅ | |
| CH ₂ SCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ | R ¹ =OCH ₃ , R ² =CH ₂ CN |
| CH ₂ NHCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ | R ³ |
| OCH ₂ CH(CH ₃) ₂ | | (CH ₂) ₃ CH ₃ |
| NHCH ₂ CH(CH ₃) ₂ | | CH ₂ CH(CH ₃) ₂ |
| C ₆ H ₅ | | CH ₂ CH ₂ CH(CH ₃) ₂ |

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|--|---|--|
| CH ₂ -cyclopentyl | NHCH ₂ CH(CH ₃) ₂ | R ¹ =Br, R ² =CH ₂ C(O)NH ₂ |
| CH ₂ O(C ₆ H ₅) | C ₆ H ₅ | R ³ |
| CH ₂ SCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ | (CH ₂) ₃ CH ₃ |
| CH ₂ NHCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ | CH ₂ CH(CH ₃) ₂ |
| OCH ₂ CH(CH ₃) ₂ | | CH ₂ CH ₂ CH(CH ₃) ₂ |
| NHCH ₂ CH(CH ₃) ₂ | R ¹ =NO ₂ , R ² =CH ₂ CN | CH ₂ -cyclopentyl |
| C ₆ H ₅ | R ³ | CH ₂ O(C ₆ H ₅) |
| 3CF ₃ -C ₆ H ₄ | (CH ₂) ₃ CH ₃ | CH ₂ SCH ₂ CH(CH ₃) ₂ |
| 2Cl-C ₆ H ₄ | CH ₂ CH(CH ₃) ₂ | CH ₂ NHCH ₂ CH(CH ₃) ₂ |
| | CH ₂ CH ₂ CH(CH ₃) ₂ | OCH ₂ CH(CH ₃) ₂ |
| R ¹ =OCF ₃ , R ² =CH ₂ CN | CH ₂ -cyclopentyl | NHCH ₂ CH(CH ₃) ₂ |
| R ³ | CH ₂ O(C ₆ H ₅) | C ₆ H ₅ |
| (CH ₂) ₃ CH ₃ | CH ₂ SCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ |
| CH ₂ CH(CH ₃) ₂ | CH ₂ NHCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ |
| CH ₂ CH ₂ CH(CH ₃) ₂ | OCH ₂ CH(CH ₃) ₂ | |
| CH ₂ -cyclopentyl | NHCH ₂ CH(CH ₃) ₂ | R ¹ =I, R ² =CH ₂ C(O)NH ₂ |
| CH ₂ O(C ₆ H ₅) | C ₆ H ₅ | R ³ |
| CH ₂ SCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ | (CH ₂) ₃ CH ₃ |
| CH ₂ NHCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ | CH ₂ CH(CH ₃) ₂ |
| OCH ₂ CH(CH ₃) ₂ | | CH ₂ CH ₂ CH(CH ₃) ₂ |
| NHCH ₂ CH(CH ₃) ₂ | R ¹ =Cl, R ² =CH ₂ C(O)NH ₂ | CH ₂ -cyclopentyl |
| C ₆ H ₅ | R ³ | CH ₂ O(C ₆ H ₅) |
| 3CF ₃ -C ₆ H ₄ | (CH ₂) ₃ CH ₃ | CH ₂ SCH ₂ CH(CH ₃) ₂ |
| 2Cl-C ₆ H ₄ | CH ₂ CH(CH ₃) ₂ | CH ₂ NHCH ₂ CH(CH ₃) ₂ |
| | CH ₂ CH ₂ CH(CH ₃) ₂ | OCH ₂ CH(CH ₃) ₂ |
| R ¹ =OCF ₂ H, R ² =CH ₂ CN | CH ₂ -cyclopentyl | NHCH ₂ CH(CH ₃) ₂ |
| R ³ | CH ₂ O(C ₆ H ₅) | C ₆ H ₅ |
| (CH ₂) ₃ CH ₃ | CH ₂ SCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ |
| CH ₂ CH(CH ₃) ₂ | CH ₂ NHCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ |
| CH ₂ CH ₂ CH(CH ₃) ₂ | OCH ₂ CH(CH ₃) ₂ | |
| CH ₂ -cyclopentyl | NHCH ₂ CH(CH ₃) ₂ | R ¹ =OCH ₃ , R ² =CH ₂ C(O)NH ₂ |
| CH ₂ O(C ₆ H ₅) | C ₆ H ₅ | R ³ |
| CH ₂ SCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ | (CH ₂) ₃ CH ₃ |
| CH ₂ NHCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ | CH ₂ CH(CH ₃) ₂ |
| OCH ₂ CH(CH ₃) ₂ | | CH ₂ CH ₂ CH(CH ₃) ₂ |

CH₂-cyclopentyl
 CH₂O (C₆H₅)
 CH₂SCH₂CH (CH₃)₂
 CH₂NHCH₂CH (CH₃)₂
 OCH₂CH (CH₃)₂
 NHCH₂CH (CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

R¹=OCF₃, R²=CH₂C(O)NH₂
 R³

(CH₂)₃CH₃
 CH₂CH (CH₃)₂
 CH₂CH₂CH (CH₃)₂
 CH₂-cyclopentyl
 CH₂O (C₆H₅)
 CH₂SCH₂CH (CH₃)₂
 CH₂NHCH₂CH (CH₃)₂
 OCH₂CH (CH₃)₂
 NHCH₂CH (CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

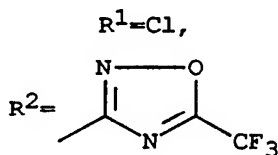
R¹=OCF₂H,
 R²=CH₂C(O)NH₂

R³
 (CH₂)₃CH₃
 CH₂CH (CH₃)₂
 CH₂CH₂CH (CH₃)₂
 CH₂-cyclopentyl
 CH₂O (C₆H₅)
 CH₂SCH₂CH (CH₃)₂
 CH₂NHCH₂CH (CH₃)₂

OCH₂CH (CH₃)₂
 NHCH₂CH (CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

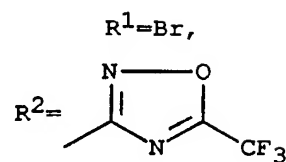
R¹=NO₂, R²=CH₂C(O)NH₂
 R³

(CH₂)₃CH₃
 CH₂CH (CH₃)₂
 CH₂CH₂CH (CH₃)₂
 CH₂-cyclopentyl
 CH₂O (C₆H₅)
 CH₂SCH₂CH (CH₃)₂
 CH₂NHCH₂CH (CH₃)₂
 OCH₂CH (CH₃)₂
 NHCH₂CH (CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

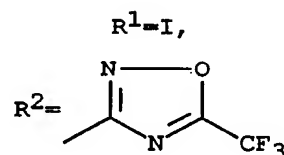


R³
 (CH₂)₃CH₃
 CH₂CH (CH₃)₂
 CH₂CH₂CH (CH₃)₂
 CH₂-cyclopentyl
 CH₂O (C₆H₅)
 CH₂SCH₂CH (CH₃)₂
 CH₂NHCH₂CH (CH₃)₂
 OCH₂CH (CH₃)₂
 NHCH₂CH (CH₃)₂

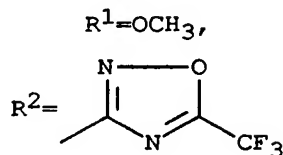
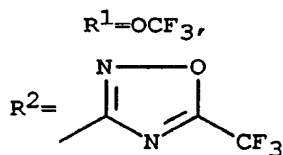
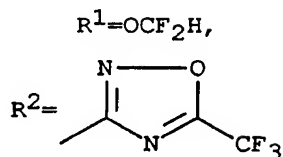
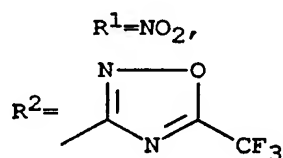
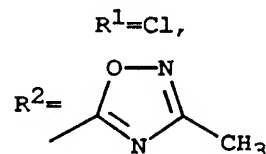
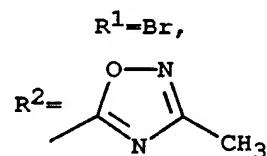
C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄



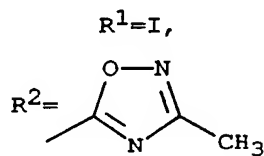
R³
 (CH₂)₃CH₃
 CH₂CH (CH₃)₂
 CH₂CH₂CH (CH₃)₂
 CH₂-cyclopentyl
 CH₂O (C₆H₅)
 CH₂SCH₂CH (CH₃)₂
 CH₂NHCH₂CH (CH₃)₂
 OCH₂CH (CH₃)₂
 NHCH₂CH (CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄



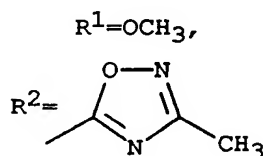
R³
 (CH₂)₃CH₃
 CH₂CH (CH₃)₂
 CH₂CH₂CH (CH₃)₂
 CH₂-cyclopentyl
 CH₂O (C₆H₅)
 CH₂SCH₂CH (CH₃)₂
 CH₂NHCH₂CH (CH₃)₂
 OCH₂CH (CH₃)₂

NHCH₂CH(CH₃)₂C₆H₅3CF₃-C₆H₄2Cl-C₆H₄R³(CH₂)₃CH₃CH₂CH(CH₃)₂CH₂CH₂CH(CH₃)₂CH₂-cyclopentylCH₂O(C₆H₅)CH₂SCH₂CH(CH₃)₂CH₂NHCH₂CH(CH₃)₂OCH₂CH(CH₃)₂NHCH₂CH(CH₃)₂C₆H₅3CF₃-C₆H₄2Cl-C₆H₄R³(CH₂)₃CH₃CH₂CH(CH₃)₂CH₂CH₂CH(CH₃)₂CH₂-cyclopentylCH₂O(C₆H₅)CH₂SCH₂CH(CH₃)₂CH₂NHCH₂CH(CH₃)₂OCH₂CH(CH₃)₂NHCH₂CH(CH₃)₂C₆H₅3CF₃-C₆H₄2Cl-C₆H₄R³(CH₂)₃CH₃CH₂CH(CH₃)₂CH₂CH₂CH(CH₃)₂CH₂-cyclopentylCH₂O(C₆H₅)CH₂SCH₂CH(CH₃)₂CH₂NHCH₂CH(CH₃)₂OCH₂CH(CH₃)₂NHCH₂CH(CH₃)₂C₆H₅3CF₃-C₆H₄2Cl-C₆H₄R³(CH₂)₃CH₃CH₂CH(CH₃)₂CH₂CH₂CH(CH₃)₂CH₂-cyclopentylCH₂O(C₆H₅)CH₂SCH₂CH(CH₃)₂CH₂NHCH₂CH(CH₃)₂OCH₂CH(CH₃)₂NHCH₂CH(CH₃)₂C₆H₅3CF₃-C₆H₄2Cl-C₆H₄R³(CH₂)₃CH₃CH₂CH(CH₃)₂CH₂CH₂CH(CH₃)₂CH₂-cyclopentylCH₂O(C₆H₅)CH₂SCH₂CH(CH₃)₂CH₂NHCH₂CH(CH₃)₂OCH₂CH(CH₃)₂NHCH₂CH(CH₃)₂C₆H₅3CF₃-C₆H₄2Cl-C₆H₄R³(CH₂)₃CH₃CH₂CH(CH₃)₂CH₂CH₂CH(CH₃)₂CH₂-cyclopentylCH₂O(C₆H₅)

CH₂SCH₂CH (CH₃)₂
 CH₂NHCH₂CH (CH₃)₂
 OCH₂CH (CH₃)₂
 NHCH₂CH (CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

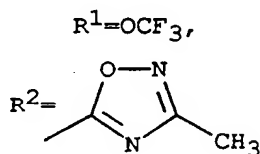
R³

(CH₂)₃CH₃
 CH₂CH (CH₃)₂
 CH₂CH₂CH (CH₃)₂
 CH₂-cyclopentyl
 CH₂O (C₆H₅)
 CH₂SCH₂CH (CH₃)₂
 CH₂NHCH₂CH (CH₃)₂
 OCH₂CH (CH₃)₂
 NHCH₂CH (CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

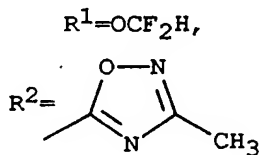
R³

(CH₂)₃CH₃
 CH₂CH (CH₃)₂
 CH₂CH₂CH (CH₃)₂
 CH₂-cyclopentyl

CH₂O (C₆H₅)
 CH₂SCH₂CH (CH₃)₂
 CH₂NHCH₂CH (CH₃)₂
 OCH₂CH (CH₃)₂
 NHCH₂CH (CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

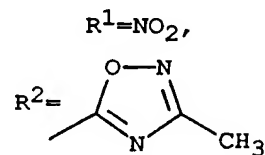
R³

(CH₂)₃CH₃
 CH₂CH (CH₃)₂
 CH₂CH₂CH (CH₃)₂
 CH₂-cyclopentyl
 CH₂O (C₆H₅)
 CH₂SCH₂CH (CH₃)₂
 CH₂NHCH₂CH (CH₃)₂
 OCH₂CH (CH₃)₂
 NHCH₂CH (CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

R³

(CH₂)₃CH₃
 CH₂CH (CH₃)₂
 CH₂CH₂CH (CH₃)₂

CH₂-cyclopentyl
 CH₂O (C₆H₅)
 CH₂SCH₂CH (CH₃)₂
 CH₂NHCH₂CH (CH₃)₂
 OCH₂CH (CH₃)₂
 NHCH₂CH (CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

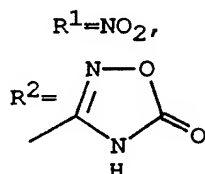
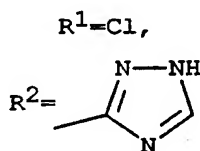
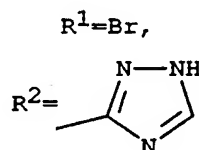
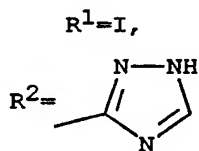
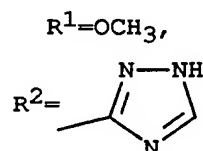
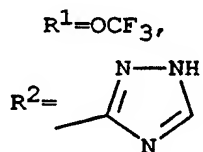
R³

(CH₂)₃CH₃
 CH₂CH (CH₃)₂
 CH₂CH₂CH (CH₃)₂
 CH₂-cyclopentyl
 CH₂O (C₆H₅)
 CH₂SCH₂CH (CH₃)₂
 CH₂NHCH₂CH (CH₃)₂
 OCH₂CH (CH₃)₂
 NHCH₂CH (CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

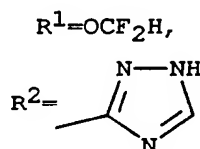
R¹=Cl, R²=CH₂ClR³

(CH₂)₃CH₃
 CH₂CH (CH₃)₂
 CH₂CH₂CH (CH₃)₂
 CH₂-cyclopentyl
 CH₂O (C₆H₅)

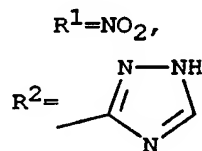
| | | |
|---|---|--|
| CH ₂ SCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ | R ¹ =OCF ₂ H, R ² =CH ₂ Cl |
| CH ₂ NHCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ | R ³ |
| OCH ₂ CH(CH ₃) ₂ | | (CH ₂) ₃ CH ₃ |
| NHCH ₂ CH(CH ₃) ₂ | R ¹ =OCH ₃ , R ² =CH ₂ Cl | CH ₂ CH(CH ₃) ₂ |
| C ₆ H ₅ | R ³ | CH ₂ CH ₂ CH(CH ₃) ₂ |
| 3CF ₃ -C ₆ H ₄ | (CH ₂) ₃ CH ₃ | CH ₂ -cyclopentyl |
| 2Cl-C ₆ H ₄ | CH ₂ CH(CH ₃) ₂ | CH ₂ O(C ₆ H ₅) |
| | CH ₂ CH ₂ CH(CH ₃) ₂ | CH ₂ SCH ₂ CH(CH ₃) ₂ |
| R ¹ =Br, R ² =CH ₂ Cl | CH ₂ -cyclopentyl | CH ₂ NHCH ₂ CH(CH ₃) ₂ |
| R ³ | CH ₂ O(C ₆ H ₅) | OCH ₂ CH(CH ₃) ₂ |
| (CH ₂) ₃ CH ₃ | CH ₂ SCH ₂ CH(CH ₃) ₂ | NHCH ₂ CH(CH ₃) ₂ |
| CH ₂ CH(CH ₃) ₂ | CH ₂ NHCH ₂ CH(CH ₃) ₂ | C ₆ H ₅ |
| CH ₂ CH ₂ CH(CH ₃) ₂ | OCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ |
| CH ₂ -cyclopentyl | NHCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ |
| CH ₂ O(C ₆ H ₅) | C ₆ H ₅ | |
| CH ₂ SCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ | R ¹ =NO ₂ , R ² =CH ₂ Cl |
| CH ₂ NHCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ | R ³ |
| OCH ₂ CH(CH ₃) ₂ | | (CH ₂) ₃ CH ₃ |
| NHCH ₂ CH(CH ₃) ₂ | R ¹ =OCF ₃ , R ² =CH ₂ Cl | CH ₂ CH(CH ₃) ₂ |
| C ₆ H ₅ | R ³ | CH ₂ CH ₂ CH(CH ₃) ₂ |
| 3CF ₃ -C ₆ H ₄ | (CH ₂) ₃ CH ₃ | CH ₂ -cyclopentyl |
| 2Cl-C ₆ H ₄ | CH ₂ CH(CH ₃) ₂ | CH ₂ O(C ₆ H ₅) |
| | CH ₂ CH ₂ CH(CH ₃) ₂ | CH ₂ SCH ₂ CH(CH ₃) ₂ |
| R ¹ =I, R ² =CH ₂ Cl | CH ₂ -cyclopentyl | CH ₂ NHCH ₂ CH(CH ₃) ₂ |
| R ³ | CH ₂ O(C ₆ H ₅) | OCH ₂ CH(CH ₃) ₂ |
| (CH ₂) ₃ CH ₃ | CH ₂ SCH ₂ CH(CH ₃) ₂ | NHCH ₂ CH(CH ₃) ₂ |
| CH ₂ CH(CH ₃) ₂ | CH ₂ NHCH ₂ CH(CH ₃) ₂ | C ₆ H ₅ |
| CH ₂ CH ₂ CH(CH ₃) ₂ | OCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ |
| CH ₂ -cyclopentyl | NHCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ |
| CH ₂ O(C ₆ H ₅) | C ₆ H ₅ | |
| CH ₂ SCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ | |
| CH ₂ NHCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ | |
| OCH ₂ CH(CH ₃) ₂ | | |
| NHCH ₂ CH(CH ₃) ₂ | | |
| C ₆ H ₅ | | |

OCH₂CH(CH₃)₂NHCH₂CH(CH₃)₂C₆H₅3CF₃-C₆H₄2Cl-C₆H₄ R^3 (CH₂)₃CH₃CH₂CH(CH₃)₂CH₂CH₂CH(CH₃)₂CH₂-cyclopentylCH₂O(C₆H₅)CH₂SCH₂CH(CH₃)₂CH₂NHCH₂CH(CH₃)₂OCH₂CH(CH₃)₂NHCH₂CH(CH₃)₂C₆H₅3CF₃-C₆H₄2Cl-C₆H₄ R^3 (CH₂)₃CH₃CH₂CH(CH₃)₂CH₂CH₂CH(CH₃)₂CH₂-cyclopentylCH₂O(C₆H₅)CH₂SCH₂CH(CH₃)₂CH₂NHCH₂CH(CH₃)₂OCH₂CH(CH₃)₂NHCH₂CH(CH₃)₂C₆H₅3CF₃-C₆H₄2Cl-C₆H₄ R^3 (CH₂)₃CH₃CH₂CH(CH₃)₂CH₂CH₂CH(CH₃)₂CH₂-cyclopentylCH₂O(C₆H₅)CH₂SCH₂CH(CH₃)₂CH₂NHCH₂CH(CH₃)₂OCH₂CH(CH₃)₂NHCH₂CH(CH₃)₂C₆H₅3CF₃-C₆H₄2Cl-C₆H₄ R^3 (CH₂)₃CH₃CH₂CH(CH₃)₂CH₂CH₂CH(CH₃)₂CH₂-cyclopentylCH₂O(C₆H₅)CH₂SCH₂CH(CH₃)₂CH₂NHCH₂CH(CH₃)₂OCH₂CH(CH₃)₂NHCH₂CH(CH₃)₂C₆H₅3CF₃-C₆H₄2Cl-C₆H₄ R^3 (CH₂)₃CH₃CH₂CH(CH₃)₂CH₂CH₂CH(CH₃)₂CH₂-cyclopentylCH₂O(C₆H₅)CH₂SCH₂CH(CH₃)₂CH₂NHCH₂CH(CH₃)₂OCH₂CH(CH₃)₂NHCH₂CH(CH₃)₂C₆H₅3CF₃-C₆H₄2Cl-C₆H₄ R^3 (CH₂)₃CH₃CH₂CH(CH₃)₂CH₂CH₂CH(CH₃)₂CH₂-cyclopentyl

CH₂O (C₆H₅)
 CH₂SCH₂CH (CH₃)₂
 CH₂NHCH₂CH (CH₃)₂
 OCH₂CH (CH₃)₂
 NHCH₂CH (CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄



R³
 (CH₂)₃CH₃
 CH₂CH (CH₃)₂
 CH₂CH₂CH (CH₃)₂
 CH₂-cyclopentyl
 CH₂O (C₆H₅)
 CH₂SCH₂CH (CH₃)₂
 CH₂NHCH₂CH (CH₃)₂
 OCH₂CH (CH₃)₂
 NHCH₂CH (CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄



R³
 (CH₂)₃CH₃
 CH₂CH (CH₃)₂
 CH₂CH₂CH (CH₃)₂

CH₂-cyclopentyl
 CH₂O (C₆H₅)
 CH₂SCH₂CH (CH₃)₂
 CH₂NHCH₂CH (CH₃)₂
 OCH₂CH (CH₃)₂
 NHCH₂CH (CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

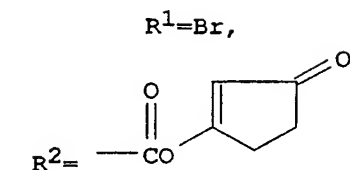
R¹=Cl, R²=CH₂OH
 R³
 (CH₂)₃CH₃
 CH₂CH (CH₃)₂
 CH₂CH₂CH (CH₃)₂
 CH₂-cyclopentyl
 CH₂O (C₆H₅)
 CH₂SCH₂CH (CH₃)₂
 CH₂NHCH₂CH (CH₃)₂
 OCH₂CH (CH₃)₂
 NHCH₂CH (CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

R¹=Br, R²=CH₂OH
 R³
 (CH₂)₃CH₃
 CH₂CH (CH₃)₂
 CH₂CH₂CH (CH₃)₂
 CH₂-cyclopentyl
 CH₂O (C₆H₅)
 CH₂SCH₂CH (CH₃)₂
 CH₂NHCH₂CH (CH₃)₂
 OCH₂CH (CH₃)₂

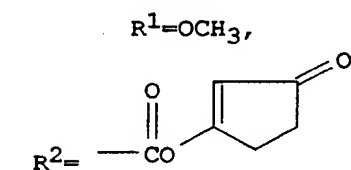
NHCH₂CH (CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄
 R¹=I, R²=CH₂OH
 R³
 (CH₂)₃CH₃
 CH₂CH (CH₃)₂
 CH₂CH₂CH (CH₃)₂
 CH₂-cyclopentyl
 CH₂O (C₆H₅)
 CH₂SCH₂CH (CH₃)₂
 CH₂NHCH₂CH (CH₃)₂
 OCH₂CH (CH₃)₂
 NHCH₂CH (CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

R¹=OCH₃, R²=CH₂OH
 R³
 (CH₂)₃CH₃
 CH₂CH (CH₃)₂
 CH₂CH₂CH (CH₃)₂
 CH₂-cyclopentyl
 CH₂O (C₆H₅)
 CH₂SCH₂CH (CH₃)₂
 CH₂NHCH₂CH (CH₃)₂
 OCH₂CH (CH₃)₂
 NHCH₂CH (CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

C₆H₅
3CF₃-C₆H₄
2Cl-C₆H₄



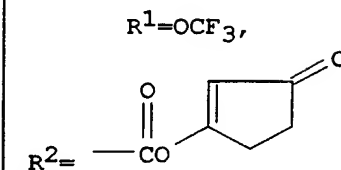
R³
 (CH₂)₃CH₃
 CH₂CH(CH₃)₂
 CH₂CH₂CH(CH₃)₂
 CH₂-cyclopentyl
 CH₂O(C₆H₅)
 CH₂SCH₂CH(CH₃)₂
 CH₂NHCH₂CH(CH₃)₂
 OCH₂CH(CH₃)₂
 NHCH₂CH(CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄



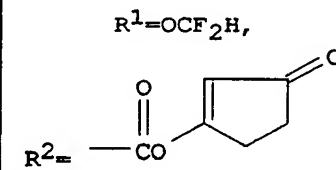
R³
 (CH₂)₃CH₃
 CH₂CH(CH₃)₂
 CH₂CH₂CH(CH₃)₂
 CH₂-cyclopentyl
 CH₂O(C₆H₅)
 CH₂SCH₂CH(CH₃)₂
 CH₂NHCH₂CH(CH₃)₂
 OCH₂CH(CH₃)₂

NHCH₂CH(CH₃)₂

C₆H₅
3CF₃-C₆H₄
2Cl-C₆H₄



R³
 (CH₂)₃CH₃
 CH₂CH(CH₃)₂
 CH₂CH₂CH(CH₃)₂
 CH₂-cyclopentyl
 CH₂O(C₆H₅)
 CH₂SCH₂CH(CH₃)₂
 CH₂NHCH₂CH(CH₃)₂
 OCH₂CH(CH₃)₂
 NHCH₂CH(CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

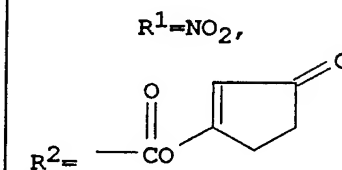


R³
 (CH₂)₃CH₃
 CH₂CH(CH₃)₂
 CH₂CH₂CH(CH₃)₂
 CH₂-cyclopentyl
 CH₂-cyclopentyl
 CH₂O(C₆H₅)
 CH₂SCH₂CH(CH₃)₂
 CH₂NHCH₂CH(CH₃)₂

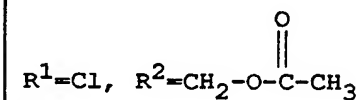
OCH₂CH(CH₃)₂

NHCH₂CH(CH₃)₂

C₆H₅
3CF₃-C₆H₄
2Cl-C₆H₄

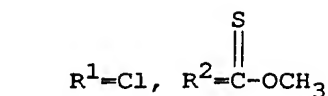


R³
 (CH₂)₃CH₃
 CH₂CH(CH₃)₂
 CH₂CH₂CH(CH₃)₂
 CH₂-cyclopentyl
 CH₂O(C₆H₅)
 CH₂SCH₂CH(CH₃)₂
 CH₂NHCH₂CH(CH₃)₂
 OCH₂CH(CH₃)₂
 NHCH₂CH(CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

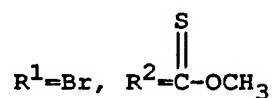


R³
 (CH₂)₃CH₃
 CH₂CH(CH₃)₂
 CH₂CH₂CH(CH₃)₂
 CH₂-cyclopentyl
 CH₂O(C₆H₅)
 CH₂SCH₂CH(CH₃)₂
 CH₂NHCH₂CH(CH₃)₂
 OCH₂CH(CH₃)₂

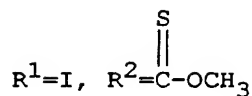
| | | |
|--|---|---|
| NHCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ | 3CF ₃ -C ₆ H ₄ |
| C ₆ H ₅ | 2Cl-C ₆ H ₄ | 2Cl-C ₆ H ₄ |
| 3CF ₃ -C ₆ H ₄ | | |
| 2Cl-C ₆ H ₄ | R ¹ =OCH ₃ , | |
| | | O R ² =CH ₂ -O-C-CH ₃ |
| R ¹ =Br, R ² =CH ₂ -O-C(=O)-CH ₃ | R ³ | R ¹ =OCF ₂ H, R ² =CH ₂ -C(=O)-OCH ₃ |
| R ³ | (CH ₂) ₃ CH ₃ | R ³ |
| (CH ₂) ₃ CH ₃ | CH ₂ CH(CH ₃) ₂ | (CH ₂) ₃ CH ₃ |
| CH ₂ CH(CH ₃) ₂ | CH ₂ CH ₂ CH(CH ₃) ₂ | CH ₂ CH(CH ₃) ₂ |
| CH ₂ CH ₂ CH(CH ₃) ₂ | CH ₂ cyclopentyl | CH ₂ CH ₂ CH(CH ₃) ₂ |
| CH ₂ cyclopentyl | CH ₂ O(C ₆ H ₅) | CH ₂ -cyclopentyl |
| CH ₂ O(C ₆ H ₅) | CH ₂ SCH ₂ CH(CH ₃) ₂ | CH ₂ O(C ₆ H ₅) |
| CH ₂ SCH ₂ CH(CH ₃) ₂ | CH ₂ NHCH ₂ CH(CH ₃) ₂ | CH ₂ SCH ₂ CH(CH ₃) ₂ |
| CH ₂ NHCH ₂ CH(CH ₃) ₂ | OCH ₂ CH(CH ₃) ₂ | CH ₂ NHCH ₂ CH(CH ₃) ₂ |
| OCH ₂ CH(CH ₃) ₂ | NHCH ₂ CH(CH ₃) ₂ | OCH ₂ CH(CH ₃) ₂ |
| NHCH ₂ CH(CH ₃) ₂ | C ₆ H ₅ | NHCH ₂ CH(CH ₃) ₂ |
| C ₆ H ₅ | 3CF ₃ -C ₆ H ₄ | C ₆ H ₅ |
| 3CF ₃ -C ₆ H ₄ | 2Cl-C ₆ H ₄ | 3CF ₃ -C ₆ H ₄ |
| 2Cl-C ₆ H ₄ | | 2Cl-C ₆ H ₄ |
| | R ¹ =OCF ₃ , | |
| | | O R ² =CH ₂ -O-C-CH ₃ |
| R ¹ =I, R ² =CH ₂ -O-C(=O)-CH ₃ | R ³ | R ¹ =NO ₂ , R ² =CH ₂ -C(=O)-OCH ₃ |
| R ³ | (CH ₂) ₃ CH ₃ | R ³ |
| (CH ₂) ₃ CH ₃ | CH ₂ CH(CH ₃) ₂ | (CH ₂) ₃ CH ₃ |
| CH ₂ CH(CH ₃) ₂ | CH ₂ CH ₂ CH(CH ₃) ₂ | CH ₂ CH(CH ₃) ₂ |
| CH ₂ CH ₂ CH(CH ₃) ₂ | CH ₂ cyclopentyl | CH ₂ CH ₂ CH(CH ₃) ₂ |
| CH ₂ cyclopentyl | CH ₂ O(C ₆ H ₅) | CH ₂ -cyclopentyl |
| CH ₂ O(C ₆ H ₅) | CH ₂ SCH ₂ CH(CH ₃) ₂ | CH ₂ O(C ₆ H ₅) |
| CH ₂ SCH ₂ CH(CH ₃) ₂ | CH ₂ NHCH ₂ CH(CH ₃) ₂ | CH ₂ SCH ₂ CH(CH ₃) ₂ |
| CH ₂ NHCH ₂ CH(CH ₃) ₂ | OCH ₂ CH(CH ₃) ₂ | CH ₂ NHCH ₂ CH(CH ₃) ₂ |
| OCH ₂ CH(CH ₃) ₂ | NHCH ₂ CH(CH ₃) ₂ | OCH ₂ CH(CH ₃) ₂ |
| NHCH ₂ CH(CH ₃) ₂ | C ₆ H ₅ | NHCH ₂ CH(CH ₃) ₂ |
| C ₆ H ₅ | 3CF ₃ -C ₆ H ₄ | C ₆ H ₅ |
| | 2Cl-C ₆ H ₄ | 3CF ₃ -C ₆ H ₄ |
| | | 2Cl-C ₆ H ₄ |

R³

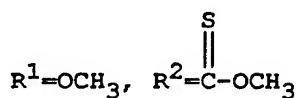
(CH₂)₃CH₃
 CH₂CH(CH₃)₂
 CH₂CH₂CH(CH₃)₂
 CH₂-cyclopentyl
 CH₂O(C₆H₅)
 CH₂SCH₂CH(CH₃)₂
 CH₂NHCH₂CH(CH₃)₂
 OCH₂CH(CH₃)₂
 NHCH₂CH(CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

R³

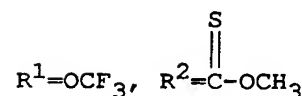
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 CH₂CH₂CH(CH₃)₂
 CH₂-cyclopentyl
 CH₂O(C₆H₅)
 CH₂SCH₂CH(CH₃)₂
 CH₂NHCH₂CH(CH₃)₂
 OCH₂CH(CH₃)₂
 NHCH₂CH(CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

R³

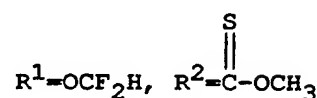
(CH₂)₃CH₃
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 CH₂CH₂CH(CH₃)₂
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 CH₂O(C₆H₅)
 CH₂SCH₂CH(CH₃)₂
 CH₂NHCH₂CH(CH₃)₂
 OCH₂CH(CH₃)₂
 NHCH₂CH(CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

R³

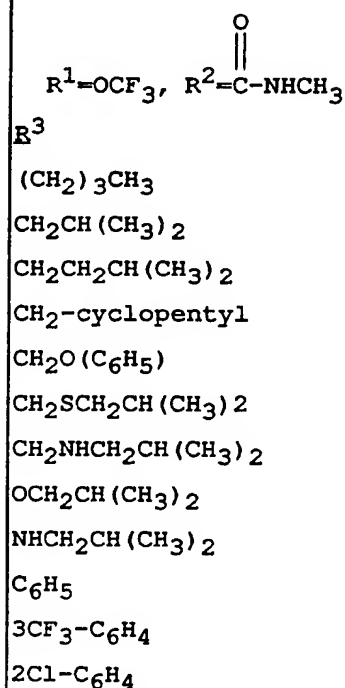
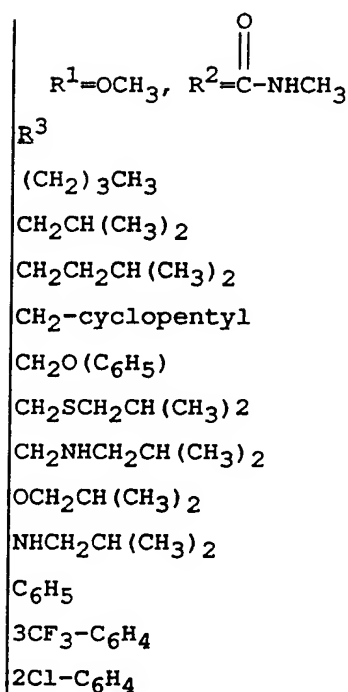
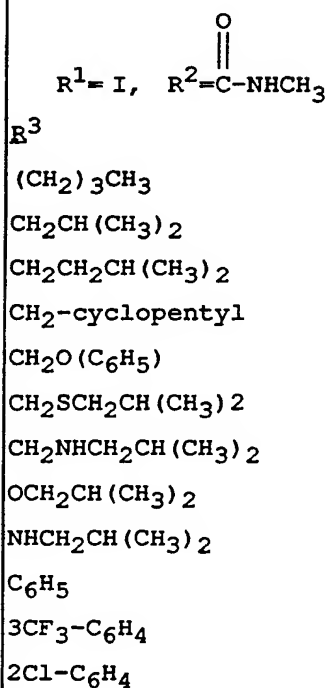
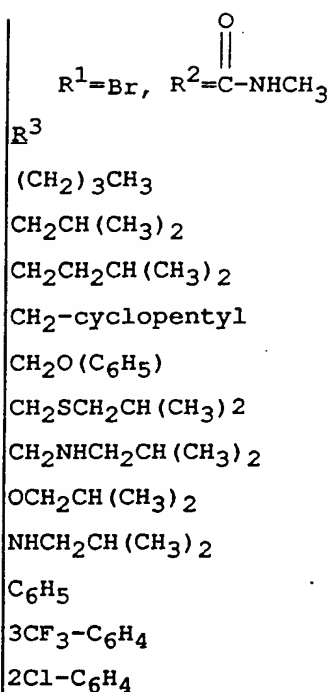
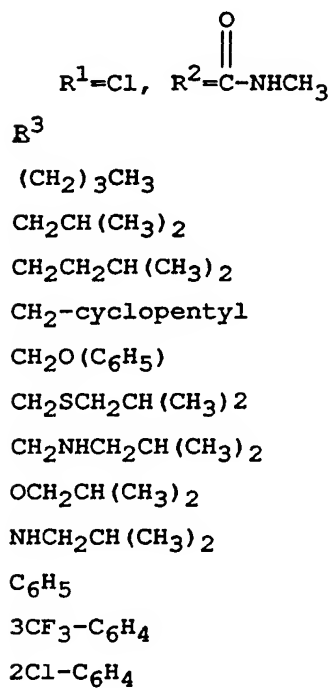
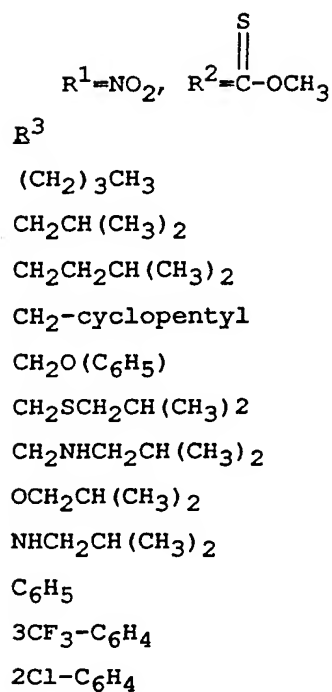
(CH₂)₃CH₃
 CH₂CH(CH₃)₂
 CH₂CH₂CH(CH₃)₂
 CH₂-cyclopentyl
 CH₂O(C₆H₅)
 CH₂SCH₂CH(CH₃)₂
 CH₂NHCH₂CH(CH₃)₂
 OCH₂CH(CH₃)₂
 NHCH₂CH(CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

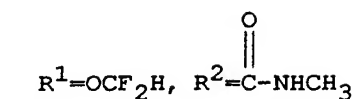
R³

(CH₂)₃CH₃
 CH₂CH(CH₃)₂
 CH₂CH₂CH(CH₃)₂
 CH₂-cyclopentyl
 CH₂O(C₆H₅)
 CH₂SCH₂CH(CH₃)₂
 CH₂NHCH₂CH(CH₃)₂
 OCH₂CH(CH₃)₂
 NHCH₂CH(CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

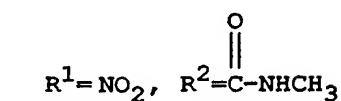
R³

(CH₂)₃CH₃
 CH₂CH(CH₃)₂
 CH₂CH₂CH(CH₃)₂
 CH₂-cyclopentyl
 CH₂O(C₆H₅)
 CH₂SCH₂CH(CH₃)₂
 CH₂NHCH₂CH(CH₃)₂
 OCH₂CH(CH₃)₂
 NHCH₂CH(CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

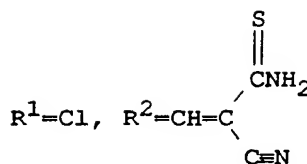


R³

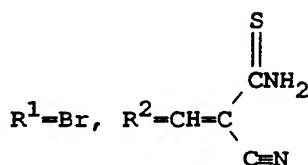
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 CH₂O(C₆H₅)
 CH₂SCH₂CH(CH₃)₂
 CH₂NHCH₂CH(CH₃)₂
 OCH₂CH(CH₃)₂
 NHCH₂CH(CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

R³

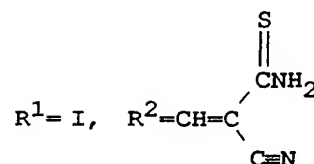
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 CH₂CH₂CH(CH₃)₂
 CH₂-cyclopentyl
 CH₂O(C₆H₅)
 CH₂SCH₂CH(CH₃)₂
 CH₂NHCH₂CH(CH₃)₂
 OCH₂CH(CH₃)₂
 NHCH₂CH(CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

R³

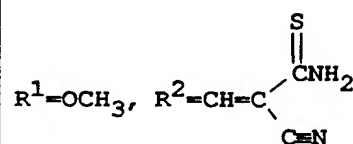
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 CH₂CH₂CH(CH₃)₂
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 CH₂O(C₆H₅)
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 CH₂NHCH₂CH(CH₃)₂
 OCH₂CH(CH₃)₂
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 3CF₃-C₆H₄
 2Cl-C₆H₄

R³

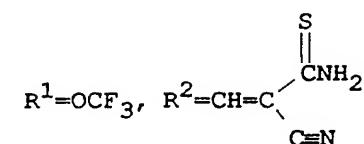
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 CH₂O(C₆H₅)
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R³

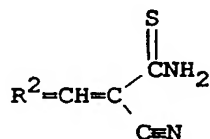
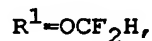
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 CH₂CH₂CH(CH₃)₂
 CH₂-cyclopentyl
 CH₂O(C₆H₅)
 CH₂SCH₂CH(CH₃)₂
 CH₂NHCH₂CH(CH₃)₂
 OCH₂CH(CH₃)₂
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 2Cl-C₆H₄

R³

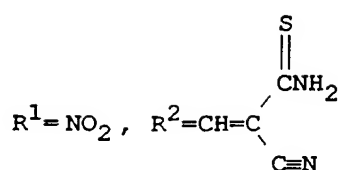
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 CH₂O(C₆H₅)
 CH₂SCH₂CH(CH₃)₂
 CH₂NHCH₂CH(CH₃)₂
 OCH₂CH(CH₃)₂
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 2Cl-C₆H₄

R³

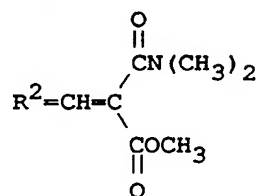
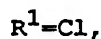
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 CH₂CH₂CH(CH₃)₂
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 CH₂O(C₆H₅)
 CH₂SCH₂CH(CH₃)₂
 CH₂NHCH₂CH(CH₃)₂
 OCH₂CH(CH₃)₂
 NHCH₂CH(CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

R³

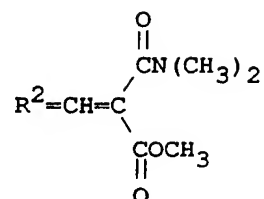
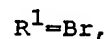
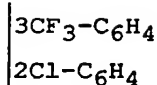
(CH₂)₃CH₃
 CH₂CH(CH₃)₂
 CH₂CH₂CH(CH₃)₂
 CH₂-cyclopentyl
 CH₂O(C₆H₅)
 CH₂SCH₂CH(CH₃)₂
 CH₂NHCH₂CH(CH₃)₂
 OCH₂CH(CH₃)₂
 NHCH₂CH(CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

R³

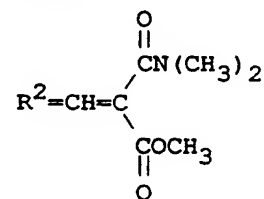
(CH₂)₃CH₃
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 CH₂CH₂CH(CH₃)₂
 CH₂-cyclopentyl
 CH₂O(C₆H₅)
 CH₂SCH₂CH(CH₃)₂
 CH₂NHCH₂CH(CH₃)₂
 OCH₂CH(CH₃)₂
 NHCH₂CH(CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

R³

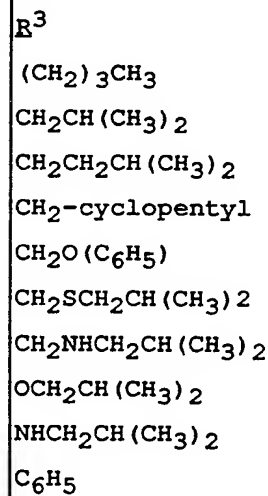
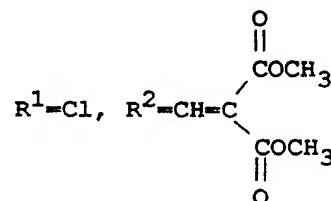
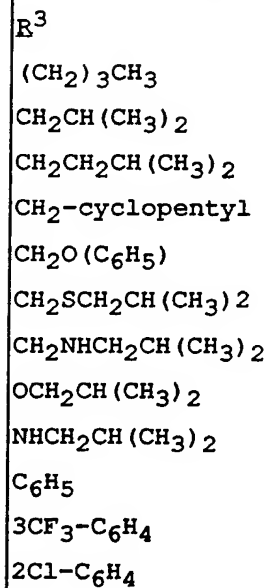
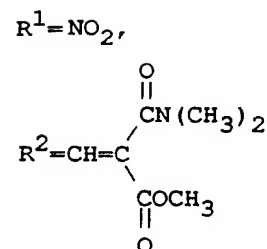
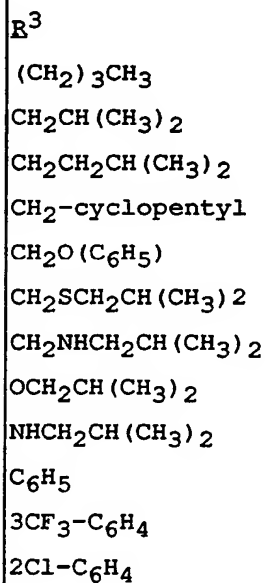
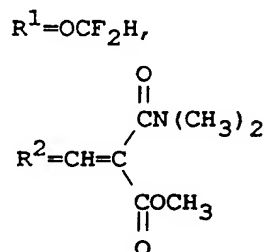
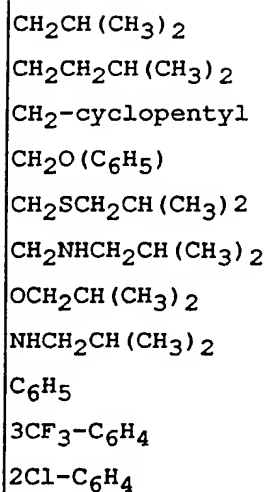
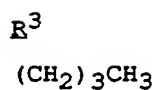
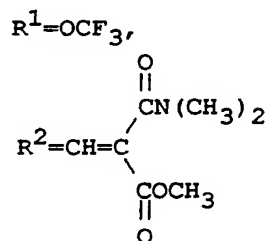
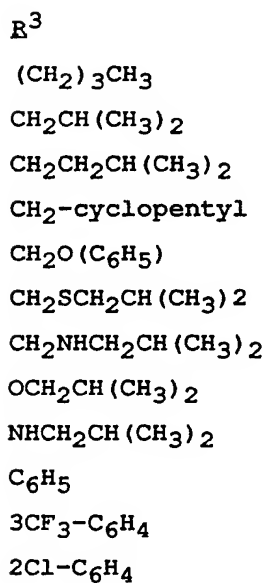
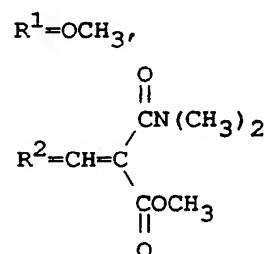
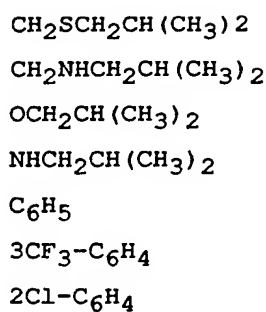
(CH₂)₃CH₃
 CH₂CH(CH₃)₂
 CH₂CH₂CH(CH₃)₂
 CH₂-cyclopentyl
 CH₂O(C₆H₅)
 CH₂SCH₂CH(CH₃)₂
 CH₂NHCH₂CH(CH₃)₂
 OCH₂CH(CH₃)₂
 NHCH₂CH(CH₃)₂
 C₆H₅

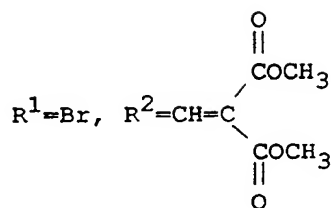
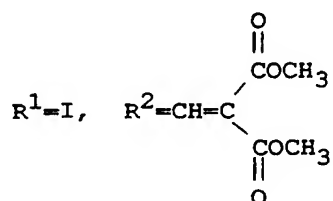
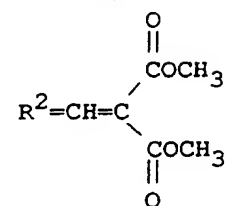
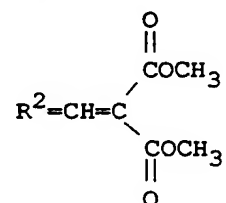
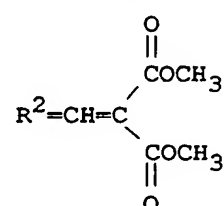
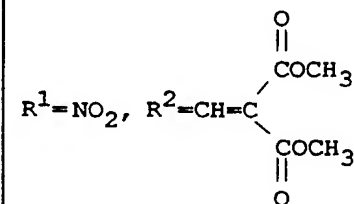
R³

(CH₂)₃CH₃
 CH₂CH(CH₃)₂
 CH₂CH₂CH(CH₃)₂
 CH₂-cyclopentyl
 CH₂O(C₆H₅)
 CH₂SCH₂CH(CH₃)₂
 CH₂NHCH₂CH(CH₃)₂
 OCH₂CH(CH₃)₂
 2Cl-C₆H₄
 NHCH₂CH(CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

R³

(CH₂)₃CH₃
 CH₂CH(CH₃)₂
 CH₂CH₂CH(CH₃)₂
 CH₂-cyclopentyl
 CH₂O(C₆H₅)



3CF₃-C₆H₄2Cl-C₆H₄R³(CH₂)₃CH₃CH₂CH(CH₃)₂CH₂CH₂CH(CH₃)₂CH₂-cyclopentylCH₂O(C₆H₅)CH₂SCH₂CH(CH₃)₂CH₂NHCH₂CH(CH₃)₂OCH₂CH(CH₃)₂NHCH₂CH(CH₃)₂C₆H₅3CF₃-C₆H₄2Cl-C₆H₄R³(CH₂)₃CH₃CH₂CH(CH₃)₂CH₂CH₂CH(CH₃)₂CH₂-cyclopentylCH₂O(C₆H₅)CH₂SCH₂CH(CH₃)₂CH₂NHCH₂CH(CH₃)₂OCH₂CH(CH₃)₂NHCH₂CH(CH₃)₂C₆H₅3CF₃-C₆H₄2Cl-C₆H₄R¹=OCH₃,R³(CH₂)₃CH₃CH₂CH(CH₃)₂CH₂CH₂CH(CH₃)₂CH₂-cyclopentylCH₂O(C₆H₅)CH₂SCH₂CH(CH₃)₂CH₂NHCH₂CH(CH₃)₂OCH₂CH(CH₃)₂NHCH₂CH(CH₃)₂C₆H₅3CF₃-C₆H₄2Cl-C₆H₄R¹=OCF₃,R³(CH₂)₃CH₃CH₂CH(CH₃)₂CH₂CH₂CH(CH₃)₂CH₂-cyclopentylCH₂O(C₆H₅)CH₂SCH₂CH(CH₃)₂CH₂NHCH₂CH(CH₃)₂OCH₂CH(CH₃)₂NHCH₂CH(CH₃)₂C₆H₅3CF₃-C₆H₄2Cl-C₆H₄R¹=OCF₂H,R³(CH₂)₃CH₃CH₂CH(CH₃)₂CH₂CH₂CH(CH₃)₂CH₂-cyclopentylCH₂O(C₆H₅)CH₂SCH₂CH(CH₃)₂CH₂NHCH₂CH(CH₃)₂OCH₂CH(CH₃)₂NHCH₂CH(CH₃)₂C₆H₅3CF₃-C₆H₄2Cl-C₆H₄R³(CH₂)₃CH₃

CH₂CH (CH₃)₂

CH₂CH₂CH (CH₃)₂

CH₂-cyclopentyl

CH₂O (C₆H₅)

CH₂SCH₂CH (CH₃)₂

CH₂NHCH₂CH (CH₃)₂

OCH₂CH (CH₃)₂

NHCH₂CH (CH₃)₂

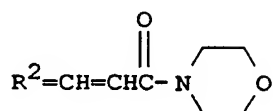
C₆H₅

R³

3CF₃-C₆H₄

2Cl-C₆H₄

R¹=Cl,



R³

(CH₂)₃CH₃

CH₂CH (CH₃)₂

CH₂CH₂CH (CH₃)₂

CH₂-cyclopentyl

CH₂O (C₆H₅)

CH₂SCH₂CH (CH₃)₂

CH₂NHCH₂CH (CH₃)₂

OCH₂CH (CH₃)₂

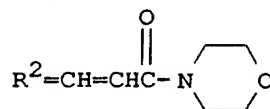
NHCH₂CH (CH₃)₂

C₆H₅

3CF₃-C₆H₄

2Cl-C₆H₄

R¹=Br,



R³

(CH₂)₃CH₃

CH₂CH (CH₃)₂

CH₂CH₂CH (CH₃)₂

CH₂-cyclopentyl

CH₂O (C₆H₅)

CH₂SCH₂CH (CH₃)₂

CH₂NHCH₂CH (CH₃)₂

OCH₂CH (CH₃)₂

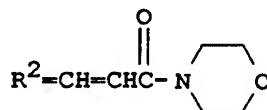
NHCH₂CH (CH₃)₂

C₆H₅

3CF₃-C₆H₄

2Cl-C₆H₄

R¹=I,



R³

(CH₂)₃CH₃

CH₂CH (CH₃)₂

CH₂CH₂CH (CH₃)₂

CH₂-cyclopentyl

CH₂O (C₆H₅)

CH₂SCH₂CH (CH₃)₂

CH₂NHCH₂CH (CH₃)₂

OCH₂CH (CH₃)₂

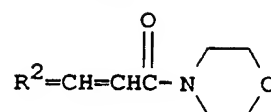
NHCH₂CH (CH₃)₂

C₆H₅

3CF₃-C₆H₄

2Cl-C₆H₄

R¹=OCH₃,



R³

(CH₂)₃CH₃

CH₂CH (CH₃)₂

CH₂CH₂CH (CH₃)₂

CH₂-cyclopentyl

CH₂O (C₆H₅)

CH₂SCH₂CH (CH₃)₂

CH₂NHCH₂CH (CH₃)₂

OCH₂CH (CH₃)₂

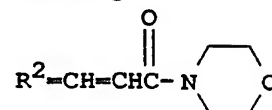
NHCH₂CH (CH₃)₂

C₆H₅

3CF₃-C₆H₄

2Cl-C₆H₄

R¹=OCF₃,



R³

(CH₂)₃CH₃

CH₂CH (CH₃)₂

CH₂CH₂CH (CH₃)₂

CH₂-cyclopentyl

CH₂O (C₆H₅)

CH₂SCH₂CH (CH₃)₂

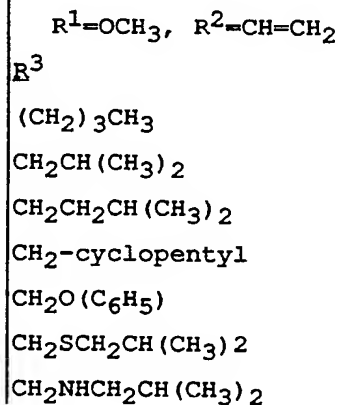
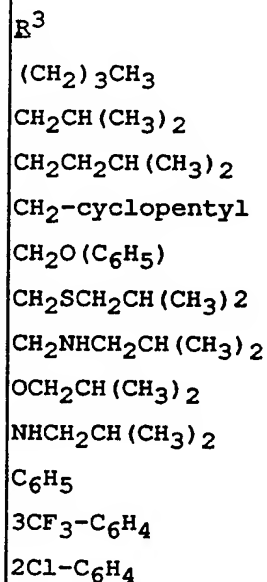
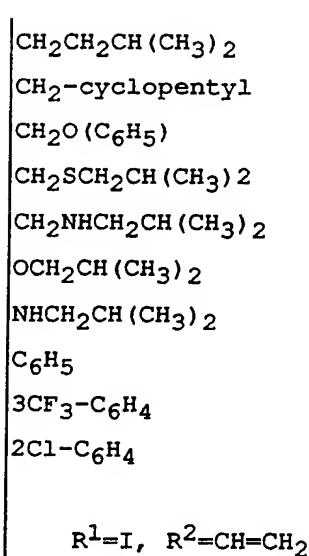
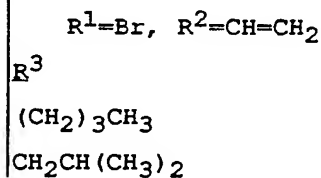
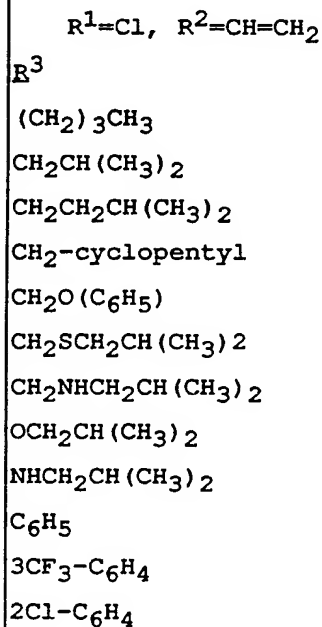
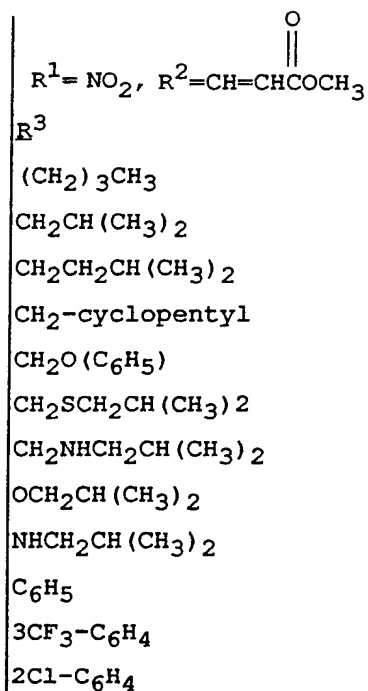
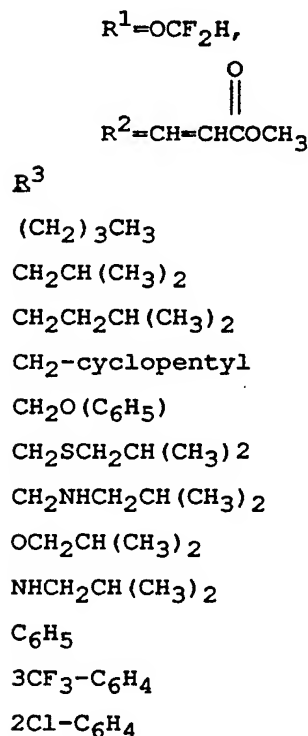
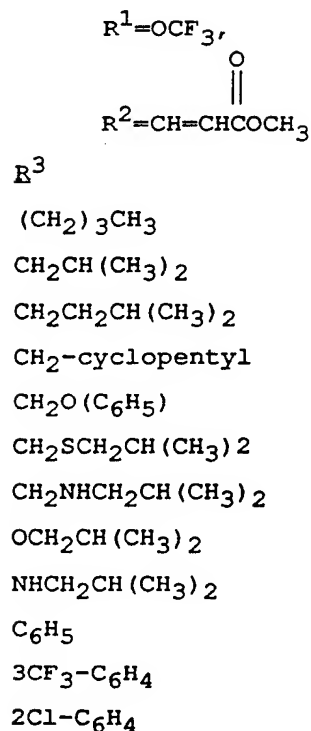
CH₂NHCH₂CH (CH₃)₂

OCH₂CH (CH₃)₂

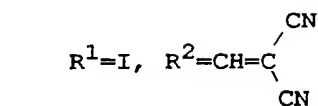
NHCH₂CH (CH₃)₂

C₆H₅

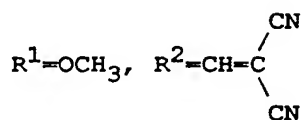
3CF₃-C₆H₄



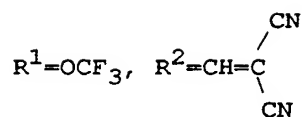
| $R^1 = OCH_3, R^2 = CH=C \begin{array}{l} \text{CN} \\ \text{CNH}_2 \\ \parallel \\ \text{O} \end{array}$ | $R^1 = OCF_2H, R^2 = CH=C \begin{array}{l} \text{CN} \\ \text{CNH}_2 \\ \parallel \\ \text{O} \end{array}$ | $R^1 = Cl, R^2 = CH=C \begin{array}{l} \text{CN} \\ \text{CN} \end{array}$ |
|---|---|---|
| R^3 $(CH_2)_3CH_3$ $CH_2CH(CH_3)_2$ $CH_2CH_2CH(CH_3)_2$ $CH_2\text{-cyclopentyl}$ $CH_2O(C_6H_5)$ $CH_2SCH_2CH(CH_3)_2$ $CH_2NHCH_2CH(CH_3)_2$ $OCH_2CH(CH_3)_2$ $NHCH_2CH(CH_3)_2$ C_6H_5 $3CF_3-C_6H_4$ $2Cl-C_6H_4$ | R^3 $(CH_2)_3CH_3$ $CH_2CH(CH_3)_2$ $CH_2CH_2CH(CH_3)_2$ $CH_2\text{-cyclopentyl}$ $CH_2O(C_6H_5)$ $CH_2SCH_2CH(CH_3)_2$ $CH_2NHCH_2CH(CH_3)_2$ $OCH_2CH(CH_3)_2$ $NHCH_2CH(CH_3)_2$ C_6H_5 $3CF_3-C_6H_4$ $2Cl-C_6H_4$ | R^3 $(CH_2)_3CH_3$ $CH_2CH(CH_3)_2$ $CH_2CH_2CH(CH_3)_2$ $CH_2\text{-cyclopentyl}$ $CH_2O(C_6H_5)$ $CH_2SCH_2CH(CH_3)_2$ $CH_2NHCH_2CH(CH_3)_2$ $OCH_2CH(CH_3)_2$ $NHCH_2CH(CH_3)_2$ C_6H_5 $3CF_3-C_6H_4$ $2Cl-C_6H_4$ |
| $R^1 = OCF_3, R^2 = CH=C \begin{array}{l} \text{CN} \\ \text{CNH}_2 \\ \parallel \\ \text{O} \end{array}$ | $R^1 = NO_2, R^2 = CH=C \begin{array}{l} \text{CN} \\ \text{CNH}_2 \\ \parallel \\ \text{O} \end{array}$ | $R^1 = Br, R^2 = CH=C \begin{array}{l} \text{CN} \\ \text{CN} \end{array}$ |
| R^3 $(CH_2)_3CH_3$ $CH_2CH(CH_3)_2$ $CH_2CH_2CH(CH_3)_2$ $CH_2\text{-cyclopentyl}$ $CH_2O(C_6H_5)$ $CH_2SCH_2CH(CH_3)_2$ $CH_2NHCH_2CH(CH_3)_2$ $OCH_2CH(CH_3)_2$ $NHCH_2CH(CH_3)_2$ C_6H_5 $3CF_3-C_6H_4$ $2Cl-C_6H_4$ | R^3 $(CH_2)_3CH_3$ $CH_2CH(CH_3)_2$ $CH_2CH_2CH(CH_3)_2$ $CH_2\text{-cyclopentyl}$ $CH_2O(C_6H_5)$ $CH_2SCH_2CH(CH_3)_2$ $CH_2NHCH_2CH(CH_3)_2$ $OCH_2CH(CH_3)_2$ $NHCH_2CH(CH_3)_2$ C_6H_5 $3CF_3-C_6H_4$ $2Cl-C_6H_4$ | R^3 $(CH_2)_3CH_3$ $CH_2CH(CH_3)_2$ $CH_2CH_2CH(CH_3)_2$ $CH_2\text{-cyclopentyl}$ $CH_2O(C_6H_5)$ $CH_2SCH_2CH(CH_3)_2$ $CH_2NHCH_2CH(CH_3)_2$ $OCH_2CH(CH_3)_2$ $NHCH_2CH(CH_3)_2$ C_6H_5 $3CF_3-C_6H_4$ $2Cl-C_6H_4$ |

R³

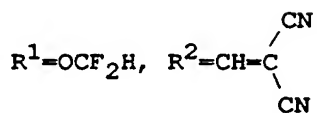
(CH₂)₃CH₃
 CH₂CH(CH₃)₂
 CH₂CH₂CH(CH₃)₂
 CH₂-cyclopentyl
 CH₂O(C₆H₅)
 CH₂SCH₂CH(CH₃)₂
 CH₂NHCH₂CH(CH₃)₂
 OCH₂CH(CH₃)₂
 NHCH₂CH(CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

R³

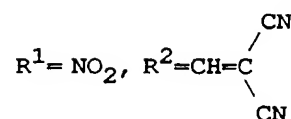
(CH₂)₃CH₃
 CH₂CH(CH₃)₂
 CH₂CH₂CH(CH₃)₂
 CH₂-cyclopentyl
 CH₂O(C₆H₅)
 CH₂SCH₂CH(CH₃)₂
 CH₂NHCH₂CH(CH₃)₂
 OCH₂CH(CH₃)₂
 NHCH₂CH(CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

R³

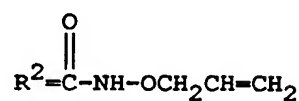
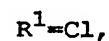
(CH₂)₃CH₃
 CH₂CH(CH₃)₂
 CH₂CH₂CH(CH₃)₂
 CH₂-cyclopentyl
 CH₂O(C₆H₅)
 CH₂SCH₂CH(CH₃)₂
 CH₂NHCH₂CH(CH₃)₂
 OCH₂CH(CH₃)₂
 NHCH₂CH(CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

R³

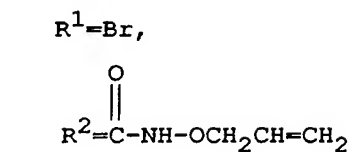
(CH₂)₃CH₃
 CH₂CH(CH₃)₂
 CH₂CH₂CH(CH₃)₂
 CH₂-cyclopentyl
 CH₂O(C₆H₅)
 CH₂SCH₂CH(CH₃)₂
 CH₂NHCH₂CH(CH₃)₂
 OCH₂CH(CH₃)₂
 NHCH₂CH(CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

R³

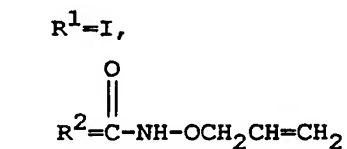
(CH₂)₃CH₃
 CH₂CH(CH₃)₂
 CH₂CH₂CH(CH₃)₂
 CH₂-cyclopentyl
 CH₂O(C₆H₅)
 CH₂SCH₂CH(CH₃)₂
 CH₂NHCH₂CH(CH₃)₂
 OCH₂CH(CH₃)₂
 NHCH₂CH(CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

R³

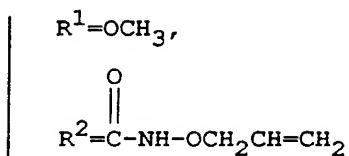
(CH₂)₃CH₃
 CH₂CH(CH₃)₂
 CH₂CH₂CH(CH₃)₂
 CH₂-cyclopentyl
 CH₂O(C₆H₅)
 CH₂SCH₂CH(CH₃)₂
 CH₂NHCH₂CH(CH₃)₂
 OCH₂CH(CH₃)₂
 NHCH₂CH(CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

 R^3

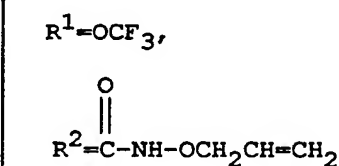
$(CH_2)_3CH_3$
 $CH_2CH(CH_3)_2$
 $CH_2CH_2CH(CH_3)_2$
 CH_2 -cyclopentyl
 $CH_2O(C_6H_5)$
 $CH_2SCH_2CH(CH_3)_2$
 $CH_2NHCH_2CH(CH_3)_2$
 $OCH_2CH(CH_3)_2$
 $NHCH_2CH(CH_3)_2$
 C_6H_5
 $3CF_3-C_6H_4$
 $2Cl-C_6H_4$

 R^3

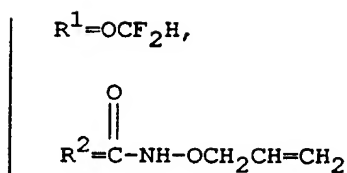
$(CH_2)_3CH_3$
 $CH_2CH(CH_3)_2$
 $CH_2CH_2CH(CH_3)_2$
 CH_2 -cyclopentyl
 $CH_2O(C_6H_5)$
 $CH_2SCH_2CH(CH_3)_2$
 $CH_2NHCH_2CH(CH_3)_2$
 $OCH_2CH(CH_3)_2$
 $NHCH_2CH(CH_3)_2$
 C_6H_5
 $3CF_3-C_6H_4$
 $2Cl-C_6H_4$

 R^3

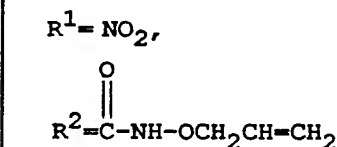
$(CH_2)_3CH_3$
 $CH_2CH(CH_3)_2$
 $CH_2CH_2CH(CH_3)_2$
 CH_2 -cyclopentyl
 $CH_2O(C_6H_5)$
 $CH_2SCH_2CH(CH_3)_2$
 $CH_2NHCH_2CH(CH_3)_2$
 $OCH_2CH(CH_3)_2$
 $NHCH_2CH(CH_3)_2$
 C_6H_5
 $3CF_3-C_6H_4$
 $2Cl-C_6H_4$

 R^3

$(CH_2)_3CH_3$
 $CH_2CH(CH_3)_2$
 $CH_2CH_2CH(CH_3)_2$
 CH_2 -cyclopentyl
 $CH_2O(C_6H_5)$
 $CH_2SCH_2CH(CH_3)_2$
 $CH_2NHCH_2CH(CH_3)_2$
 $OCH_2CH(CH_3)_2$
 $NHCH_2CH(CH_3)_2$
 C_6H_5
 $3CF_3-C_6H_4$
 $2Cl-C_6H_4$

 R^3

$(CH_2)_3CH_3$
 $CH_2CH(CH_3)_2$
 $CH_2CH_2CH(CH_3)_2$
 CH_2 -cyclopentyl
 $CH_2O(C_6H_5)$
 $CH_2SCH_2CH(CH_3)_2$
 $CH_2NHCH_2CH(CH_3)_2$
 $OCH_2CH(CH_3)_2$
 $NHCH_2CH(CH_3)_2$
 C_6H_5
 $3CF_3-C_6H_4$
 $2Cl-C_6H_4$

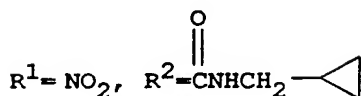
 R^3

$(CH_2)_3CH_3$
 $CH_2CH(CH_3)_2$
 $CH_2CH_2CH(CH_3)_2$
 CH_2 -cyclopentyl
 $CH_2O(C_6H_5)$
 $CH_2SCH_2CH(CH_3)_2$
 $CH_2NHCH_2CH(CH_3)_2$
 $OCH_2CH(CH_3)_2$
 $NHCH_2CH(CH_3)_2$
 C_6H_5
 $3CF_3-C_6H_4$
 $2Cl-C_6H_4$

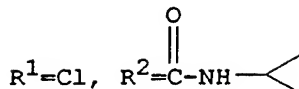
| $R^1 = Cl, R^2 = \overset{O}{\parallel} CNH-OCH_3$ R^3 $(CH_2)_3CH_3$ $CH_2CH(CH_3)_2$ $CH_2CH_2CH(CH_3)_2$ CH_2 -cyclopentyl $CH_2O(C_6H_5)$ $CH_2SCH_2CH(CH_3)_2$ $CH_2NHCH_2CH(CH_3)_2$ $OCH_2CH(CH_3)_2$ $NHCH_2CH(CH_3)_2$ C_6H_5 $3CF_3-C_6H_4$ $2Cl-C_6H_4$ | $R^1 = I, R^2 = \overset{O}{\parallel} CNH-OCH_3$ R^3 $(CH_2)_3CH_3$ $CH_2CH(CH_3)_2$ $CH_2CH_2CH(CH_3)_2$ CH_2 -cyclopentyl $CH_2O(C_6H_5)$ $CH_2SCH_2CH(CH_3)_2$ $CH_2NHCH_2CH(CH_3)_2$ $OCH_2CH(CH_3)_2$ $NHCH_2CH(CH_3)_2$ C_6H_5 $3CF_3-C_6H_4$ $2Cl-C_6H_4$ | $R^1 = OCF_3, R^2 = \overset{O}{\parallel} CNH-OCH_3$ R^3 $(CH_2)_3CH_3$ $CH_2CH(CH_3)_2$ $CH_2CH_2CH(CH_3)_2$ CH_2 -cyclopentyl $CH_2O(C_6H_5)$ $CH_2SCH_2CH(CH_3)_2$ $CH_2NHCH_2CH(CH_3)_2$ $OCH_2CH(CH_3)_2$ $NHCH_2CH(CH_3)_2$ C_6H_5 $3CF_3-C_6H_4$ $2Cl-C_6H_4$ |
|---|--|---|
| $R^1 = Br, R^2 = \overset{O}{\parallel} CNH-OCH_3$ R^3 $(CH_2)_3CH_3$ $CH_2CH(CH_3)_2$ $CH_2CH_2CH(CH_3)_2$ CH_2 -cyclopentyl $CH_2O(C_6H_5)$ $CH_2SCH_2CH(CH_3)_2$ $CH_2NHCH_2CH(CH_3)_2$ $OCH_2CH(CH_3)_2$ $NHCH_2CH(CH_3)_2$ C_6H_5 $3CF_3-C_6H_4$ $2Cl-C_6H_4$ | $R^1 = OCH_3, R^2 = \overset{O}{\parallel} CNH-OCH_3$ R^3 $(CH_2)_3CH_3$ $CH_2CH(CH_3)_2$ $CH_2CH_2CH(CH_3)_2$ CH_2 -cyclopentyl $CH_2O(C_6H_5)$ $CH_2SCH_2CH(CH_3)_2$ $CH_2NHCH_2CH(CH_3)_2$ $OCH_2CH(CH_3)_2$ $NHCH_2CH(CH_3)_2$ C_6H_5 $3CF_3-C_6H_4$ $2Cl-C_6H_4$ | $R^1 = OCF_2H, R^2 = \overset{O}{\parallel} CNH-OCH_3$ R^3 $(CH_2)_3CH_3$ $CH_2CH(CH_3)_2$ $CH_2CH_2CH(CH_3)_2$ CH_2 -cyclopentyl $CH_2O(C_6H_5)$ $CH_2SCH_2CH(CH_3)_2$ $CH_2NHCH_2CH(CH_3)_2$ $OCH_2CH(CH_3)_2$ $NHCH_2CH(CH_3)_2$ C_6H_5 $3CF_3-C_6H_4$ $2Cl-C_6H_4$ |

R³

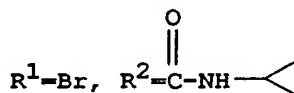
$(CH_2)_3CH_3$
 $CH_2CH(CH_3)_2$
 $CH_2CH_2CH(CH_3)_2$
 CH_2 -cyclopentyl
 $CH_2O(C_6H_5)$
 $CH_2SCH_2CH(CH_3)_2$
 $CH_2NHCH_2CH(CH_3)_2$
 $OCH_2CH(CH_3)_2$
 $NHCH_2CH(CH_3)_2$
 C_6H_5
 $3CF_3-C_6H_4$
 $2Cl-C_6H_4$

R³

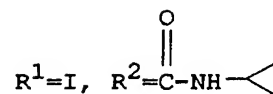
$(CH_2)_3CH_3$
 $CH_2CH(CH_3)_2$
 $CH_2CH_2CH(CH_3)_2$
 CH_2 -cyclopentyl
 $CH_2O(C_6H_5)$
 $CH_2SCH_2CH(CH_3)_2$
 $CH_2NHCH_2CH(CH_3)_2$
 $OCH_2CH(CH_3)_2$
 $NHCH_2CH(CH_3)_2$
 C_6H_5
 $3CF_3-C_6H_4$
 $2Cl-C_6H_4$

R³

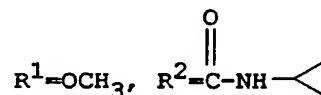
$(CH_2)_3CH_3$
 $CH_2CH(CH_3)_2$
 $CH_2CH_2CH(CH_3)_2$
 CH_2 -cyclopentyl
 $CH_2O(C_6H_5)$
 $CH_2SCH_2CH(CH_3)_2$
 $CH_2NHCH_2CH(CH_3)_2$
 $OCH_2CH(CH_3)_2$
 $NHCH_2CH(CH_3)_2$
 C_6H_5
 $3CF_3-C_6H_4$
 $2Cl-C_6H_4$

R³

$(CH_2)_3CH_3$
 $CH_2CH(CH_3)_2$
 $CH_2CH_2CH(CH_3)_2$
 CH_2 -cyclopentyl
 $CH_2O(C_6H_5)$
 $CH_2SCH_2CH(CH_3)_2$
 $CH_2NHCH_2CH(CH_3)_2$
 $OCH_2CH(CH_3)_2$
 $NHCH_2CH(CH_3)_2$
 C_6H_5
 $3CF_3-C_6H_4$
 $2Cl-C_6H_4$

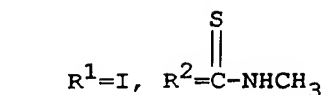
R³

$(CH_2)_3CH_3$
 $CH_2CH(CH_3)_2$
 $CH_2CH_2CH(CH_3)_2$
 CH_2 -cyclopentyl
 $CH_2O(C_6H_5)$
 $CH_2SCH_2CH(CH_3)_2$
 $CH_2NHCH_2CH(CH_3)_2$
 $OCH_2CH(CH_3)_2$
 $NHCH_2CH(CH_3)_2$
 C_6H_5
 $3CF_3-C_6H_4$
 $2Cl-C_6H_4$

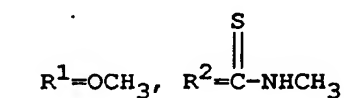
R³

$(CH_2)_3CH_3$
 $CH_2CH(CH_3)_2$
 $CH_2CH_2CH(CH_3)_2$
 CH_2 -cyclopentyl
 $CH_2O(C_6H_5)$
 $CH_2SCH_2CH(CH_3)_2$
 $CH_2NHCH_2CH(CH_3)_2$
 $OCH_2CH(CH_3)_2$
 $NHCH_2CH(CH_3)_2$
 C_6H_5
 $3CF_3-C_6H_4$
 $2Cl-C_6H_4$

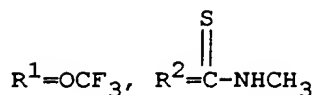
| | | |
|---|--|--|
| $R^1 = OCH_3, R^2 = \overset{\overset{O}{\parallel}}{C}N(CH_3)_2$ | $R^1 = OCF_2H, R^2 = \overset{\overset{O}{\parallel}}{C}N(CH_3)_2$ | $R^1 = Cl, R^2 = \overset{\overset{S}{\parallel}}{C}-NHCH_3$ |
| R^3 | R^3 | R^3 |
| $(CH_2)_3CH_3$ | $(CH_2)_3CH_3$ | $(CH_2)_3CH_3$ |
| $CH_2CH(CH_3)_2$ | $CH_2CH(CH_3)_2$ | $CH_2CH(CH_3)_2$ |
| $CH_2CH_2CH(CH_3)_2$ | $CH_2CH_2CH(CH_3)_2$ | $CH_2CH_2CH(CH_3)_2$ |
| CH_2 -cyclopentyl | CH_2 -cyclopentyl | CH_2 -cyclopentyl |
| $CH_2O(C_6H_5)$ | $CH_2O(C_6H_5)$ | $CH_2O(C_6H_5)$ |
| $CH_2SCH_2CH(CH_3)_2$ | $CH_2SCH_2CH(CH_3)_2$ | $CH_2SCH_2CH(CH_3)_2$ |
| $CH_2NHCH_2CH(CH_3)_2$ | $CH_2NHCH_2CH(CH_3)_2$ | $CH_2NHCH_2CH(CH_3)_2$ |
| $OCH_2CH(CH_3)_2$ | $OCH_2CH(CH_3)_2$ | $OCH_2CH(CH_3)_2$ |
| $NHCH_2CH(CH_3)_2$ | $NHCH_2CH(CH_3)_2$ | $NHCH_2CH(CH_3)_2$ |
| C_6H_5 | C_6H_5 | C_6H_5 |
| $3CF_3-C_6H_4$ | $3CF_3-C_6H_4$ | $3CF_3-C_6H_4$ |
| $2Cl-C_6H_4$ | $2Cl-C_6H_4$ | $2Cl-C_6H_4$ |
| $R^1 = OCF_3, R^2 = \overset{\overset{O}{\parallel}}{C}N(CH_3)_2$ | $R^1 = NO_2, R^2 = \overset{\overset{O}{\parallel}}{C}N(CH_3)_2$ | $R^1 = Br, R^2 = \overset{\overset{S}{\parallel}}{C}-NHCH_3$ |
| R^3 | R^3 | R^3 |
| $(CH_2)_3CH_3$ | $(CH_2)_3CH_3$ | $(CH_2)_3CH_3$ |
| $CH_2CH(CH_3)_2$ | $CH_2CH(CH_3)_2$ | $CH_2CH(CH_3)_2$ |
| $CH_2CH_2CH(CH_3)_2$ | $CH_2CH_2CH(CH_3)_2$ | $CH_2CH_2CH(CH_3)_2$ |
| CH_2 -cyclopentyl | CH_2 -cyclopentyl | CH_2 -cyclopentyl |
| $CH_2O(C_6H_5)$ | $CH_2O(C_6H_5)$ | $CH_2O(C_6H_5)$ |
| $CH_2SCH_2CH(CH_3)_2$ | $CH_2SCH_2CH(CH_3)_2$ | $CH_2SCH_2CH(CH_3)_2$ |
| $CH_2NHCH_2CH(CH_3)_2$ | $CH_2NHCH_2CH(CH_3)_2$ | $CH_2NHCH_2CH(CH_3)_2$ |
| $OCH_2CH(CH_3)_2$ | $OCH_2CH(CH_3)_2$ | $OCH_2CH(CH_3)_2$ |
| $NHCH_2CH(CH_3)_2$ | $NHCH_2CH(CH_3)_2$ | $NHCH_2CH(CH_3)_2$ |
| C_6H_5 | C_6H_5 | C_6H_5 |
| $3CF_3-C_6H_4$ | $3CF_3-C_6H_4$ | $3CF_3-C_6H_4$ |
| $2Cl-C_6H_4$ | $2Cl-C_6H_4$ | $2Cl-C_6H_4$ |

R³

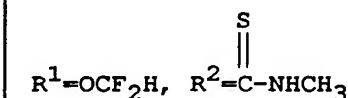
(CH₂)₃CH₃
 CH₂CH(CH₃)₂
 CH₂CH₂CH(CH₃)₂
 CH₂-cyclopentyl
 CH₂O(C₆H₅)
 CH₂SCH₂CH(CH₃)₂
 CH₂NHCH₂CH(CH₃)₂
 OCH₂CH(CH₃)₂
 NHCH₂CH(CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

R³

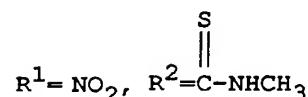
(CH₂)₃CH₃
 CH₂CH(CH₃)₂
 CH₂CH₂CH(CH₃)₂
 CH₂-cyclopentyl
 CH₂O(C₆H₅)
 CH₂SCH₂CH(CH₃)₂
 CH₂NHCH₂CH(CH₃)₂
 OCH₂CH(CH₃)₂
 NHCH₂CH(CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

R³

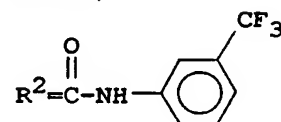
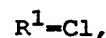
(CH₂)₃CH₃
 CH₂CH(CH₃)₂
 CH₂CH₂CH(CH₃)₂
 CH₂-cyclopentyl
 CH₂O(C₆H₅)
 CH₂SCH₂CH(CH₃)₂
 CH₂NHCH₂CH(CH₃)₂
 OCH₂CH(CH₃)₂
 NHCH₂CH(CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

R³

(CH₂)₃CH₃
 CH₂CH(CH₃)₂
 CH₂CH₂CH(CH₃)₂
 CH₂-cyclopentyl
 CH₂O(C₆H₅)
 CH₂SCH₂CH(CH₃)₂
 CH₂NHCH₂CH(CH₃)₂
 OCH₂CH(CH₃)₂
 NHCH₂CH(CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

R³

(CH₂)₃CH₃
 CH₂CH(CH₃)₂
 CH₂CH₂CH(CH₃)₂
 CH₂-cyclopentyl
 CH₂O(C₆H₅)
 CH₂SCH₂CH(CH₃)₂
 CH₂NHCH₂CH(CH₃)₂
 OCH₂CH(CH₃)₂
 NHCH₂CH(CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

R³

(CH₂)₃CH₃
 CH₂CH(CH₃)₂
 CH₂CH₂CH(CH₃)₂
 CH₂-cyclopentyl
 CH₂O(C₆H₅)
 CH₂SCH₂CH(CH₃)₂
 CH₂NHCH₂CH(CH₃)₂
 OCH₂CH(CH₃)₂
 NHCH₂CH(CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

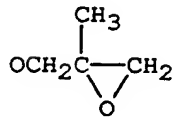
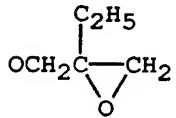
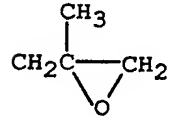
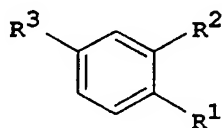
| | | |
|---|--|---|
| $R^1 = \text{OCF}_2\text{H},$ O \parallel $R^2 = \text{C}-\text{NH}-\text{CH}_2\text{CH}_3$ R^3 $(\text{CH}_2)_3\text{CH}_3$ $\text{CH}_2\text{CH}(\text{CH}_3)_2$ $\text{CH}_2\text{CH}_2\text{CH}(\text{CH}_3)_2$ $\text{CH}_2\text{-cyclopentyl}$ $\text{CH}_2\text{O}(\text{C}_6\text{H}_5)$ $\text{CH}_2\text{SCH}_2\text{CH}(\text{CH}_3)_2$ $\text{CH}_2\text{NHCH}_2\text{CH}(\text{CH}_3)_2$ $\text{OCH}_2\text{CH}(\text{CH}_3)_2$ $\text{NHCH}_2\text{CH}(\text{CH}_3)_2$ C_6H_5 $3\text{CF}_3\text{-C}_6\text{H}_4$ $2\text{Cl-C}_6\text{H}_4$ | $R^1 = \text{NO}_2,$ O \parallel $R^2 = \text{C}-\text{NH}-\text{CH}_2\text{CH}_3$ R^3 $(\text{CH}_2)_3\text{CH}_3$ $\text{CH}_2\text{CH}(\text{CH}_3)_2$ $\text{CH}_2\text{CH}_2\text{CH}(\text{CH}_3)_2$ $\text{CH}_2\text{-cyclopentyl}$ $\text{CH}_2\text{O}(\text{C}_6\text{H}_5)$ $\text{CH}_2\text{SCH}_2\text{CH}(\text{CH}_3)_2$ $\text{CH}_2\text{NHCH}_2\text{CH}(\text{CH}_3)_2$ $\text{OCH}_2\text{CH}(\text{CH}_3)_2$ $\text{NHCH}_2\text{CH}(\text{CH}_3)_2$ C_6H_5 $3\text{CF}_3\text{-C}_6\text{H}_4$ $2\text{Cl-C}_6\text{H}_4$ | $R^1 = \text{Cl}, R^2 = \text{C}(\text{O})\text{NH}_2$ R^3    $\text{OCH}_2\text{CH}(\text{CH}_3)(\text{CH}_2\text{OH})$ $\text{OCH}_2\text{COH}(\text{CH}_3)_2$ |
|---|--|---|

TABLE 2

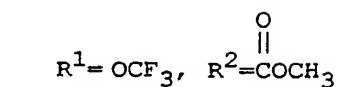


| | | |
|---|--|---|
| $R^1 = \text{Cl}, R^2 = \text{CN}$ R^3 $(\text{CH}_2)_3\text{CH}_3$ $\text{CH}_2\text{CH}(\text{CH}_3)_2$ $\text{CH}_2\text{CH}_2\text{CH}(\text{CH}_3)_2$ $\text{CH}_2\text{-cyclopentyl}$ $\text{CH}_2\text{O}(\text{C}_6\text{H}_5)$ $\text{CH}_2\text{SCH}_2\text{CH}(\text{CH}_3)_2$ $\text{CH}_2\text{NHCH}_2\text{CH}(\text{CH}_3)_2$ $\text{OCH}_2\text{CH}(\text{CH}_3)_2$ $\text{NHCH}_2\text{CH}(\text{CH}_3)_2$ | C_6H_5 $3\text{CF}_3\text{-C}_6\text{H}_4$ $2\text{Cl-C}_6\text{H}_4$ $R^1 = \text{Br}, R^2 = \text{CN}$ R^3 $(\text{CH}_2)_3\text{CH}_3$ $\text{CH}_2\text{CH}(\text{CH}_3)_2$ $\text{CH}_2\text{CH}_2\text{CH}(\text{CH}_3)_2$ $\text{CH}_2\text{-cyclopentyl}$ $\text{CH}_2\text{O}(\text{C}_6\text{H}_5)$ | $\text{CH}_2\text{SCH}_2\text{CH}(\text{CH}_3)_2$ $\text{CH}_2\text{NHCH}_2\text{CH}(\text{CH}_3)_2$ $\text{OCH}_2\text{CH}(\text{CH}_3)_2$ $\text{NHCH}_2\text{CH}(\text{CH}_3)_2$ C_6H_5 $3\text{CF}_3\text{-C}_6\text{H}_4$ $2\text{Cl-C}_6\text{H}_4$ $R^1 = \text{OCF}_3, R^2 = \text{CN}$ R^3 $(\text{CH}_2)_3\text{CH}_3$ |
|---|--|---|

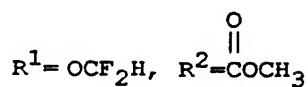
| | | |
|---|--|--|
| CH ₂ CH(CH ₃) ₂ | CH ₂ NHCH ₂ CH(CH ₃) ₂ | |
| CH ₂ CH ₂ CH(CH ₃) ₂ | OCH ₂ CH(CH ₃) ₂ | |
| CH ₂ -cyclopentyl | NHCH ₂ CH(CH ₃) ₂ | $R^1 = \text{OCF}_3, R^2 = \overset{\text{O}}{\parallel} \text{CNH}_2$ |
| CH ₂ O(C ₆ H ₅) | C ₆ H ₅ | R ³ |
| CH ₂ SCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ | (CH ₂) ₃ CH ₃ |
| CH ₂ NHCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ | CH ₂ CH(CH ₃) ₂ |
| OCH ₂ CH(CH ₃) ₂ | | CH ₂ CH ₂ CH(CH ₃) ₂ |
| NHCH ₂ CH(CH ₃) ₂ | | CH ₂ -cyclopentyl |
| C ₆ H ₅ | $R^1 = \text{Cl}, R^2 = \overset{\text{O}}{\parallel} \text{CNH}_2$ | CH ₂ O(C ₆ H ₅) |
| 3CF ₃ -C ₆ H ₄ | R ³ | CH ₂ SCH ₂ CH(CH ₃) ₂ |
| 2Cl-C ₆ H ₄ | (CH ₂) ₃ CH ₃ | CH ₂ NHCH ₂ CH(CH ₃) ₂ |
| $R^1 = \text{OCF}_2\text{H}, R^2 = \text{CN}$ | CH ₂ CH(CH ₃) ₂ | OCH ₂ CH(CH ₃) ₂ |
| R ³ | CH ₂ CH ₂ CH(CH ₃) ₂ | NHCH ₂ CH(CH ₃) ₂ |
| (CH ₂) ₃ CH ₃ | CH ₂ -cyclopentyl | C ₆ H ₅ |
| CH ₂ CH(CH ₃) ₂ | CH ₂ O(C ₆ H ₅) | 3CF ₃ -C ₆ H ₄ |
| CH ₂ CH ₂ CH(CH ₃) ₂ | CH ₂ SCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ |
| CH ₂ -cyclopentyl | CH ₂ NHCH ₂ CH(CH ₃) ₂ | |
| CH ₂ O(C ₆ H ₅) | OCH ₂ CH(CH ₃) ₂ | $R^1 = \text{OCF}_2\text{H}, R^2 = \overset{\text{O}}{\parallel} \text{CNH}_2$ |
| CH ₂ SCH ₂ CH(CH ₃) ₂ | NHCH ₂ CH(CH ₃) ₂ | R ³ |
| CH ₂ NHCH ₂ CH(CH ₃) ₂ | C ₆ H ₅ | (CH ₂) ₃ CH ₃ |
| OCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ | CH ₂ CH(CH ₃) ₂ |
| NHCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ | CH ₂ CH ₂ CH(CH ₃) ₂ |
| C ₆ H ₅ | | CH ₂ -cyclopentyl |
| 3CF ₃ -C ₆ H ₄ | $R^1 = \text{Br}, R^2 = \overset{\text{O}}{\parallel} \text{CNH}_2$ | CH ₂ O(C ₆ H ₅) |
| 2Cl-C ₆ H ₄ | R ³ | CH ₂ SCH ₂ CH(CH ₃) ₂ |
| $R^1 = \text{NO}_2, R^2 = \text{CN}$ | (CH ₂) ₃ CH ₃ | CH ₂ NHCH ₂ CH(CH ₃) ₂ |
| R ³ | CH ₂ CH(CH ₃) ₂ | OCH ₂ CH(CH ₃) ₂ |
| (CH ₂) ₃ CH ₃ | CH ₂ CH ₂ CH(CH ₃) ₂ | NHCH ₂ CH(CH ₃) ₂ |
| CH ₂ CH(CH ₃) ₂ | CH ₂ -cyclopentyl | C ₆ H ₅ |
| CH ₂ CH ₂ CH(CH ₃) ₂ | CH ₂ O(C ₆ H ₅) | 3CF ₃ -C ₆ H ₄ |
| CH ₂ -cyclopentyl | CH ₂ SCH ₂ CH(CH ₃) ₂ | 2Cl-C ₆ H ₄ |
| CH ₂ O(C ₆ H ₅) | CH ₂ NHCH ₂ CH(CH ₃) ₂ R ³ | |
| CH ₂ SCH ₂ CH(CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ | |
| | 2Cl-C ₆ H ₄ | |

| | | |
|---|--|---|
| $R^1 = NO_2, R^2 = \overset{O}{\parallel} CNH_2$ R^3 $(CH_2)_3CH_3$ $CH_2CH(CH_3)_2$ $CH_2CH_2CH(CH_3)_2$ $CH_2\text{-cyclopentyl}$ $CH_2O(C_6H_5)$ $CH_2SCH_2CH(CH_3)_2$ $CH_2NHCH_2CH(CH_3)_2$ $OCH_2CH(CH_3)_2$ $NHCH_2CH(CH_3)_2$ C_6H_5 $3CF_3\text{-}C_6H_4$ $2Cl\text{-}C_6H_4$ | $CH_2CH_2CH(CH_3)_2$ $CH_2\text{-cyclopentyl}$ $CH_2O(C_6H_5)$ $CH_2SCH_2CH(CH_3)_2$ $CH_2NHCH_2CH(CH_3)_2$ $OCH_2CH(CH_3)_2$ $NHCH_2CH(CH_3)_2$ C_6H_5 $3CF_3\text{-}C_6H_4$ $2Cl\text{-}C_6H_4$ | $OCH_2CH(CH_3)_2$ $NHCH_2CH(CH_3)_2$ C_6H_5 $3CF_3\text{-}C_6H_4$ $2Cl\text{-}C_6H_4$ |
| $R^1 = Cl, R^2 = C\equiv CH$ R^3 $(CH_2)_3CH_3$ $CH_2CH(CH_3)_2$ $CH_2CH_2CH(CH_3)_2$ $CH_2\text{-cyclopentyl}$ $CH_2O(C_6H_5)$ $CH_2SCH_2CH(CH_3)_2$ $CH_2NHCH_2CH(CH_3)_2$ $OCH_2CH(CH_3)_2$ $NHCH_2CH(CH_3)_2$ C_6H_5 $3CF_3\text{-}C_6H_4$ $2Cl\text{-}C_6H_4$ | $R^1 = OCF_3, R^2 = C\equiv CH$ R^3 $(CH_2)_3CH_3$ $CH_2CH(CH_3)_2$ $CH_2CH_2CH(CH_3)_2$ $CH_2\text{-cyclopentyl}$ $CH_2O(C_6H_5)$ $CH_2SCH_2CH(CH_3)_2$ $CH_2NHCH_2CH(CH_3)_2$ $OCH_2CH(CH_3)_2$ $NHCH_2CH(CH_3)_2$ C_6H_5 $3CF_3\text{-}C_6H_4$ $2Cl\text{-}C_6H_4$ | $R^1 = NO_2, R^2 = C\equiv CH$ R^3 $(CH_2)_3CH_3$ $CH_2CH(CH_3)_2$ $CH_2CH_2CH(CH_3)_2$ $CH_2\text{-cyclopentyl}$ $CH_2O(C_6H_5)$ $CH_2SCH_2CH(CH_3)_2$ $CH_2NHCH_2CH(CH_3)_2$ $OCH_2CH(CH_3)_2$ $NHCH_2CH(CH_3)_2$ C_6H_5 $3CF_3\text{-}C_6H_4$ $2Cl\text{-}C_6H_4$ |
| $R^1 = Br, R^2 = C\equiv CH$ R^3 $(CH_2)_3CH_3$ $CH_2CH(CH_3)_2$ | $R^1 = OCF_2H, R^2 = C\equiv CH$ R^3 $(CH_2)_3CH_3$ $CH_2CH(CH_3)_2$ $CH_2CH_2CH(CH_3)_2$ $CH_2\text{-cyclopentyl}$ $CH_2O(C_6H_5)$ $CH_2SCH_2CH(CH_3)_2$ $CH_2NHCH_2CH(CH_3)_2$ | $R^1 = Cl, R^2 = \overset{O}{\parallel} COH$ R^3 $(CH_2)_3CH_3$ $CH_2CH(CH_3)_2$ $CH_2CH_2CH(CH_3)_2$ $CH_2\text{-cyclopentyl}$ $CH_2O(C_6H_5)$ $CH_2SCH_2CH(CH_3)_2$ $CH_2NHCH_2CH(CH_3)_2$ $OCH_2CH(CH_3)_2$ $NHCH_2CH(CH_3)_2$ C_6H_5 $3CF_3\text{-}C_6H_4$ |

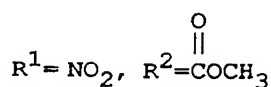
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|---|---|---|
| 2Cl-C ₆ H ₄ | $R^1 = \text{OCF}_2\text{H}, R^2 = \text{COH}$ | $R^1 = \text{Cl}, R^2 = \text{COCH}_3$ |
| $R^1 = \text{Br}, R^2 = \text{COH}$ | R^3 | R^3 |
| R ³ | (CH ₂) ₃ CH ₃ | (CH ₂) ₃ CH ₃ |
| (CH ₂) ₃ CH ₃ | CH ₂ CH(CH ₃) ₂ | CH ₂ CH(CH ₃) ₂ |
| CH ₂ CH(CH ₃) ₂ | CH ₂ CH ₂ CH(CH ₃) ₂ | CH ₂ CH ₂ CH(CH ₃) ₂ |
| CH ₂ CH ₂ CH(CH ₃) ₂ | CH ₂ -cyclopentyl | CH ₂ -cyclopentyl |
| CH ₂ -cyclopentyl | CH ₂ O(C ₆ H ₅) | CH ₂ O(C ₆ H ₅) |
| CH ₂ O(C ₆ H ₅) | CH ₂ SCH ₂ CH(CH ₃) ₂ | CH ₂ SCH ₂ CH(CH ₃) ₂ |
| CH ₂ SCH ₂ CH(CH ₃) ₂ | CH ₂ NHCH ₂ CH(CH ₃) ₂ | CH ₂ NHCH ₂ CH(CH ₃) ₂ |
| CH ₂ NHCH ₂ CH(CH ₃) ₂ | OCH ₂ CH(CH ₃) ₂ | OCH ₂ CH(CH ₃) ₂ |
| OCH ₂ CH(CH ₃) ₂ | NHCH ₂ CH(CH ₃) ₂ | NHCH ₂ CH(CH ₃) ₂ |
| NHCH ₂ CH(CH ₃) ₂ | C ₆ H ₅ | C ₆ H ₅ |
| C ₆ H ₅ | 3CF ₃ -C ₆ H ₄ | 3CF ₃ -C ₆ H ₄ |
| 3CF ₃ -C ₆ H ₄ | 2Cl-C ₆ H ₄ | 2Cl-C ₆ H ₄ |
| 2Cl-C ₆ H ₄ | $R^1 = \text{NO}_2, R^2 = \text{COH}$ | $R^1 = \text{Br}, R^2 = \text{COCH}_3$ |
| $R^1 = \text{OCF}_3, R^2 = \text{COH}$ | R^3 | R^3 |
| R ³ | (CH ₂) ₃ CH ₃ | (CH ₂) ₃ CH ₃ |
| (CH ₂) ₃ CH ₃ | CH ₂ CH(CH ₃) ₂ | CH ₂ CH(CH ₃) ₂ |
| CH ₂ CH(CH ₃) ₂ | CH ₂ CH ₂ CH(CH ₃) ₂ | CH ₂ CH ₂ CH(CH ₃) ₂ |
| CH ₂ CH ₂ CH(CH ₃) ₂ | CH ₂ -cyclopentyl | CH ₂ -cyclopentyl |
| CH ₂ -cyclopentyl | CH ₂ O(C ₆ H ₅) | CH ₂ O(C ₆ H ₅) |
| CH ₂ O(C ₆ H ₅) | CH ₂ SCH ₂ CH(CH ₃) ₂ | CH ₂ SCH ₂ CH(CH ₃) ₂ |
| CH ₂ SCH ₂ CH(CH ₃) ₂ | CH ₂ NHCH ₂ CH(CH ₃) ₂ | CH ₂ NHCH ₂ CH(CH ₃) ₂ |
| CH ₂ NHCH ₂ CH(CH ₃) ₂ | OCH ₂ CH(CH ₃) ₂ | OCH ₂ CH(CH ₃) ₂ |
| OCH ₂ CH(CH ₃) ₂ | NHCH ₂ CH(CH ₃) ₂ | NHCH ₂ CH(CH ₃) ₂ |
| NHCH ₂ CH(CH ₃) ₂ | C ₆ H ₅ | C ₆ H ₅ |
| C ₆ H ₅ | 3CF ₃ -C ₆ H ₄ | 3CF ₃ -C ₆ H ₄ |
| 3CF ₃ -C ₆ H ₄ | 2Cl-C ₆ H ₄ | 2Cl-C ₆ H ₄ |
| 2Cl-C ₆ H ₄ | | |

R³

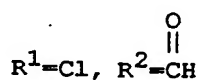
(CH₂)₃CH₃
 CH₂CH(CH₃)₂
 CH₂CH₂CH(CH₃)₂
 CH₂-cyclopentyl
 CH₂O(C₆H₅)
 CH₂SCH₂CH(CH₃)₂
 CH₂NHCH₂CH(CH₃)₂
 OCH₂CH(CH₃)₂
 NHCH₂CH(CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

R³

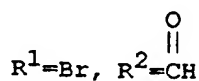
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 CH₂CH(CH₃)₂
 CH₂CH₂CH(CH₃)₂
 CH₂-cyclopentyl
 CH₂O(C₆H₅)
 CH₂SCH₂CH(CH₃)₂
 CH₂NHCH₂CH(CH₃)₂
 OCH₂CH(CH₃)₂
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 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

R³

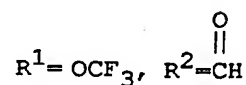
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 CH₂CH(CH₃)₂
 CH₂CH₂CH(CH₃)₂
 CH₂-cyclopentyl
 CH₂O(C₆H₅)
 CH₂SCH₂CH(CH₃)₂
 CH₂NHCH₂CH(CH₃)₂
 OCH₂CH(CH₃)₂
 NHCH₂CH(CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

R³

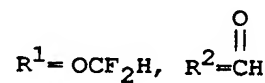
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 CH₂CH(CH₃)₂
 CH₂CH₂CH(CH₃)₂
 CH₂-cyclopentyl
 CH₂O(C₆H₅)
 CH₂SCH₂CH(CH₃)₂
 CH₂NHCH₂CH(CH₃)₂
 OCH₂CH(CH₃)₂
 NHCH₂CH(CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

R³(CH₂)₃CH₃

CH₂CH(CH₃)₂
 CH₂CH₂CH(CH₃)₂
 CH₂-cyclopentyl
 CH₂O(C₆H₅)
 CH₂SCH₂CH(CH₃)₂
 CH₂NHCH₂CH(CH₃)₂
 OCH₂CH(CH₃)₂
 NHCH₂CH(CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

R³

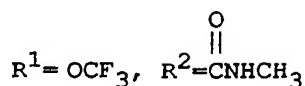
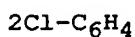
(CH₂)₃CH₃
 CH₂CH(CH₃)₂
 CH₂CH₂CH(CH₃)₂
 CH₂-cyclopentyl
 CH₂O(C₆H₅)
 CH₂SCH₂CH(CH₃)₂
 CH₂NHCH₂CH(CH₃)₂
 OCH₂CH(CH₃)₂
 NHCH₂CH(CH₃)₂
 C₆H₅
 3CF₃-C₆H₄
 2Cl-C₆H₄

R³

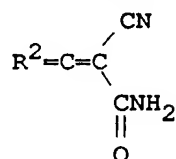
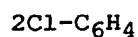
(CH₂)₃CH₃
 CH₂CH(CH₃)₂
 CH₂CH₂CH(CH₃)₂
 CH₂-cyclopentyl

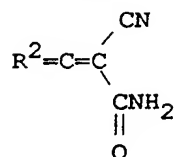
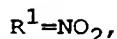
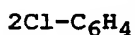
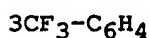
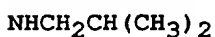
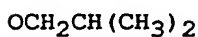
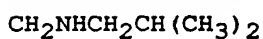
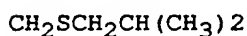
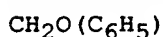
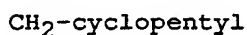
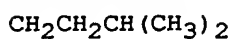
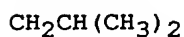
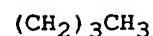
| | | |
|--|--|--|
| CH ₂ O (C ₆ H ₅) | OCH ₂ CH (CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ |
| CH ₂ SCH ₂ CH (CH ₃) ₂ | NHCH ₂ CH (CH ₃) ₂ | 2Cl-C ₆ H ₄ |
| CH ₂ NHCH ₂ CH (CH ₃) ₂ | C ₆ H ₅ | |
| OCH ₂ CH (CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ | $R^1 = \text{OCF}_2\text{H}, R^2 = \text{COCH}_3$ |
| NHCH ₂ CH (CH ₃) ₂ | 2Cl-C ₆ H ₄ | R^3 |
| C ₆ H ₅ | | (CH ₂) ₃ CH ₃ |
| 3CF ₃ -C ₆ H ₄ | $R^1 = \text{Br}, R^2 = \text{COCH}_3$ | CH ₂ CH (CH ₃) ₂ |
| 2Cl-C ₆ H ₄ | R^3 | CH ₂ CH ₂ CH (CH ₃) ₂ |
| | (CH ₂) ₃ CH ₃ | CH ₂ -cyclopentyl |
| $R^1 = \text{NO}_2, R^2 = \text{CH}$ | CH ₂ CH (CH ₃) ₂ | CH ₂ O (C ₆ H ₅) |
| R^3 | CH ₂ CH ₂ CH (CH ₃) ₂ | CH ₂ SCH ₂ CH (CH ₃) ₂ |
| (CH ₂) ₃ CH ₃ | CH ₂ -cyclopentyl | CH ₂ NHCH ₂ CH (CH ₃) ₂ |
| CH ₂ CH (CH ₃) ₂ | CH ₂ O (C ₆ H ₅) | OCH ₂ CH (CH ₃) ₂ |
| CH ₂ CH ₂ CH (CH ₃) ₂ | CH ₂ SCH ₂ CH (CH ₃) ₂ | NHCH ₂ CH (CH ₃) ₂ |
| CH ₂ -cyclopentyl | CH ₂ NHCH ₂ CH (CH ₃) ₂ | C ₆ H ₅ |
| CH ₂ O (C ₆ H ₅) | OCH ₂ CH (CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ |
| CH ₂ SCH ₂ CH (CH ₃) ₂ | NHCH ₂ CH (CH ₃) ₂ | 2Cl-C ₆ H ₄ |
| CH ₂ NHCH ₂ CH (CH ₃) ₂ | C ₆ H ₅ | |
| OCH ₂ CH (CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ | $R^1 = \text{NO}_2, R^2 = \text{COCH}_3$ |
| NHCH ₂ CH (CH ₃) ₂ | 2Cl-C ₆ H ₄ | R^3 |
| C ₆ H ₅ | | (CH ₂) ₃ CH ₃ |
| 3CF ₃ -C ₆ H ₄ | $R^1 = \text{OCF}_3, R^2 = \text{COCH}_3$ | CH ₂ CH (CH ₃) ₂ |
| 2Cl-C ₆ H ₄ | R^3 | CH ₂ CH ₂ CH (CH ₃) ₂ |
| | (CH ₂) ₃ CH ₃ | CH ₂ -cyclopentyl |
| $R^1 = \text{Cl}, R^2 = \text{COCH}_3$ | CH ₂ CH (CH ₃) ₂ | CH ₂ O (C ₆ H ₅) |
| R^3 | CH ₂ CH ₂ CH (CH ₃) ₂ | CH ₂ SCH ₂ CH (CH ₃) ₂ |
| (CH ₂) ₃ CH ₃ | CH ₂ -cyclopentyl | CH ₂ NHCH ₂ CH (CH ₃) ₂ |
| CH ₂ CH (CH ₃) ₂ | CH ₂ O (C ₆ H ₅) | OCH ₂ CH (CH ₃) ₂ |
| CH ₂ CH ₂ CH (CH ₃) ₂ | CH ₂ SCH ₂ CH (CH ₃) ₂ | NHCH ₂ CH (CH ₃) ₂ |
| CH ₂ -cyclopentyl | CH ₂ NHCH ₂ CH (CH ₃) ₂ | C ₆ H ₅ |
| CH ₂ O (C ₆ H ₅) | OCH ₂ CH (CH ₃) ₂ | 3CF ₃ -C ₆ H ₄ |
| CH ₂ SCH ₂ CH (CH ₃) ₂ | NHCH ₂ CH (CH ₃) ₂ | 2Cl-C ₆ H ₄ |
| CH ₂ NHCH ₂ CH (CH ₃) ₂ | C ₆ H ₅ | |

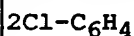
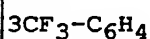
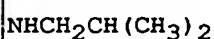
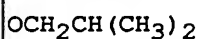
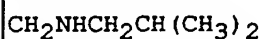
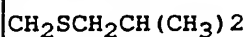
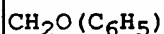
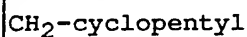
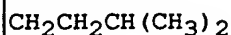
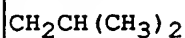
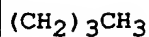
| | | |
|---|---|---|
| $R^1 = Cl, R^2 = CH_2OH$ R^3 $(CH_2)_3CH_3$ $CH_2CH(CH_3)_2$ $CH_2CH_2CH(CH_3)_2$ CH_2 -cyclopentyl $CH_2O(C_6H_5)$ $CH_2SCH_2CH(CH_3)_2$ $CH_2NHCH_2CH(CH_3)_2$ $OCH_2CH(CH_3)_2$ $NHCH_2CH(CH_3)_2$ C_6H_5 $3CF_3-C_6H_4$ $2Cl-C_6H_4$ | CH_2 -cyclopentyl $CH_2O(C_6H_5)$ $CH_2SCH_2CH(CH_3)_2$ $CH_2NHCH_2CH(CH_3)_2$ $OCH_2CH(CH_3)_2$ $NHCH_2CH(CH_3)_2$ C_6H_5 $3CF_3-C_6H_4$ $2Cl-C_6H_4$ | $NHCH_2CH(CH_3)_2$ C_6H_5 $3CF_3-C_6H_4$ $2Cl-C_6H_4$ |
| $R^1 = Br, R^2 = CH_2OH$ R^3 $(CH_2)_3CH_3$ $CH_2CH(CH_3)_2$ $CH_2CH_2CH(CH_3)_2$ CH_2 -cyclopentyl $CH_2O(C_6H_5)$ $CH_2SCH_2CH(CH_3)_2$ $CH_2NHCH_2CH(CH_3)_2$ $OCH_2CH(CH_3)_2$ $NHCH_2CH(CH_3)_2$ C_6H_5 $3CF_3-C_6H_4$ $2Cl-C_6H_4$ | $R^1 = OCF_2H, R^2 = CH_2OH$ R^3 $(CH_2)_3CH_3$ $CH_2CH(CH_3)_2$ $CH_2CH_2CH(CH_3)_2$ CH_2 -cyclopentyl $CH_2O(C_6H_5)$ $CH_2SCH_2CH(CH_3)_2$ $CH_2NHCH_2CH(CH_3)_2$ $OCH_2CH(CH_3)_2$ $NHCH_2CH(CH_3)_2$ C_6H_5 $3CF_3-C_6H_4$ $2Cl-C_6H_4$ | $R^1 = Cl, R^2 = \overset{O}{\parallel} CNHCH_3$ R^3 $(CH_2)_3CH_3$ $CH_2CH(CH_3)_2$ $CH_2CH_2CH(CH_3)_2$ CH_2 -cyclopentyl $CH_2O(C_6H_5)$ $CH_2SCH_2CH(CH_3)_2$ $CH_2NHCH_2CH(CH_3)_2$ $OCH_2CH(CH_3)_2$ $NHCH_2CH(CH_3)_2$ C_6H_5 $3CF_3-C_6H_4$ $2Cl-C_6H_4$ |
| $R^1 = OCF_3, R^2 = CH_2OH$ R^3 $(CH_2)_3CH_3$ $CH_2CH(CH_3)_2$ $CH_2CH_2CH(CH_3)_2$ | $R^1 = NO_2, R^2 = CH_2OH$ R^3 $(CH_2)_3CH_3$ $CH_2CH(CH_3)_2$ $CH_2CH_2CH(CH_3)_2$ CH_2 -cyclopentyl $CH_2O(C_6H_5)$ $CH_2SCH_2CH(CH_3)_2$ $CH_2NHCH_2CH(CH_3)_2$ $OCH_2CH(CH_3)_2$ | $R^1 = Br, R^2 = \overset{O}{\parallel} CNHCH_3$ R^3 $(CH_2)_3CH_3$ $CH_2CH(CH_3)_2$ $CH_2CH_2CH(CH_3)_2$ CH_2 -cyclopentyl $CH_2O(C_6H_5)$ $CH_2SCH_2CH(CH_3)_2$ $CH_2NHCH_2CH(CH_3)_2$ $OCH_2CH(CH_3)_2$ $NHCH_2CH(CH_3)_2$ C_6H_5 $3CF_3-C_6H_4$ |



117



$$\text{R}^3$$


$$\text{R}^3$$


Formulation

Compositions of this invention comprising the active compounds of Formula I or II will generally be used in formulation with an agriculturally suitable carrier comprising a liquid or solid diluent or an organic solvent. Useful formulations may be in the form that includes dusts, granules, pellets, solutions, suspensions, emulsions, wettable powders, emulsifiable concentrates, dry flowables and the like, consistent with the physical properties of the active ingredient, mode of application and environmental factors such as soil type, moisture and temperature. Sprayable formulations can be extended in suitable media and used at spray volumes from about one to several hundred

liters per hectare. High strength compositions are primarily used as intermediates for further formulation. The formulations will typically contain effective amounts of active ingredient, diluent and
 5 surfactant within the following approximate ranges which add up 100 weight percent.

| | Weight Percent | | |
|--|------------------------------------|----------------|-------------------|
| | <u>Active</u> <u>Ingredient</u> | <u>Diluent</u> | <u>Surfactant</u> |
| Wettable Powders | 25-90 | 0-74 | 1-10 |
| Oil Suspensions, Emulsions, Solutions, (including Emulsifiable Concentrates) | 5-50 | 40-95 | 0-15 |
| Dusts | 1-25 | 70-99 | 0-5 |
| Granules and Pellets | 0.01-99 | 5-99.99 | 0-15 |
| High Strength Compositions | 90-99 | 0-10 | 0-2 |

Typical solid diluents are described in Watkins,
 10 et al., *Handbook of Insecticide Dust Diluents and Carriers*, 2nd Ed., Dorland Books, Caldwell, New Jersey. Typical liquid diluents and solvents are described in Marsden, *Solvents Guide*, 2nd Ed., Interscience, New York, 1950. *McCutcheon's Detergents and Emulsifiers*
 15 *Annual*, Allured Publ. Corp., Ridgewood, New Jersey, as well as Sisely and Wood, *Encyclopedia of Surface Active Agents*, Chemical Publ. Co., Inc., New York, 1964, list surfactants and recommended uses. All formulations can contain minor amounts of additives to reduce foam,
 20 caking, corrosion, microbiological growth, etc.

Solutions are prepared by simply mixing the ingredients. Fine solid compositions are made by blending and, usually, grinding as in a hammer mill or fluid energy mill. Water-dispersible granules can be
 25 produced by agglomerating a fine powder composition; see for example, Cross et al., *Pesticide Formulations*,

Washington, D.C., 1988, pp 251-259. Suspensions are prepared by wet-milling; see, for example, U.S. 3,060,084. Granules and pellets can be made by spraying the active material upon preformed granular carriers or by agglomeration techniques. See Browning, "Agglomeration", *Chemical Engineering*, December 4, 1967, pp 147-48, *Perry's Chemical Engineer's Handbook*, 4th Ed., McGraw-Hill, New York, 1963, pages 8-57 and following, and WO 91/13546. Pellets can be prepared as described in U.S. 4,172,714. Water-dispersible and water-soluble granules can also be prepared as taught in DE 3,246,493.

For further information regarding the art of formulation, see U.S. 3,235,361, Col. 6, line 16 through Col. 7, line 19 and Examples 10-41; U.S. 3,309,192, Col. 5, line 43 through Col. 7, line 62 and Examples 8, 12, 15, 39, 41, 52, 53, 58, 132, 138-140, 162-164, 166, 167 and 169-182; U.S. 2,891,855, Col. 3, line 66 through Col. 5, line 17 and Examples 1-4; Klingman, *Weed Control as a Science*, John Wiley and Sons, Inc., New York, 1961, pp 81-96; and Hance et al., *Weed Control Handbook*, 8th Ed., Blackwell Scientific Publications, Oxford, 1989.

In the following Examples, all percentages are by weight and all formulations are worked up in conventional ways. Compound numbers refer to compounds in Index Table A.

EXAMPLE A

High Strength Concentrate

| | | |
|----|---------------------------------|-------|
| 30 | Compound 1 | 98.5% |
| | silica aerogel | 0.5% |
| | synthetic amorphous fine silica | 1.0% |

EXAMPLE B

Wettable Powder

| | | |
|----|------------|-------|
| 35 | Compound 1 | 65.0% |
|----|------------|-------|

| | |
|---|-------|
| dodecylphenol polyethylene glycol ether | 2.0% |
| sodium ligninsulfonate | 4.0% |
| sodium silicoaluminate | 6.0% |
| montmorillonite (calcined) | 23.0% |

5 EXAMPLE C

Granule

| | | |
|--|---|-------|
| | Compound 1 | 10.0% |
| | attapulgitc granules (low volative matter, 0.71/0.30 mm; U.S.S. No. 25-50 sieves) | 90.0% |

EXAMPLE D

Extruded Pellet

| | | |
|----|-----------------------------------|-------|
| | Compound 1 | 25.0% |
| | anhydrous sodium sulfate | 10.0% |
| 15 | crude calcium ligninsulfonate | 5.0% |
| | sodium alkyl naphthalenesulfonate | 1.0% |
| | calcium/magnesium bentonite | 59.0% |

Tests results indicate that the compounds of the present invention are highly active preemergent and/or postemergent herbicides and/or plant growth regulants. Many of them have utility for broad-spectrum pre- and/or postemergence weed control in areas where complete control of all vegetation is desired such as around fuel storage tanks, industrial storage areas, parking lots, drive-in theaters, around billboards and highway and railroad structures. Some of the compounds are useful for the control of selected grass and broadleaf weeds with tolerance to important agronomic crops which include but are not limited to barley, cotton, wheat, corn, soybeans and rice. Those skilled in the art will appreciate that not all compounds are equally effective against all weeds. Alternatively, the subject compounds are useful to modify plant growth.

In certain instances, combinations with other herbicides having a similiar spectrum of control but a different mode of action will be particularly advantageous for resistance management.

5 UTILITY

Test results indicate that compositions of this invention are herbicidally active postemergence and preemergence. The compositions of this invention are particularly useful for the control of barnyardgrass
10 (*Echinochloa crus-galli*) in crops especially upland and rice (*Oryza sativa*).

A herbicidal effective amount of the compounds of this invention is determined by a number of factors. These factors include: formulation selected, method of
15 application, amount and type of vegetation present, growing conditions, etc. In general terms, a herbicidally effective amount is a rate from 0.005 to 10 kg/ha with a preferred rate range of 0.01 to 1 kg/ha. One skilled in the art can easily determine
20 effective application rates for desired level of weed control.

The compositions of this invention may include as active compounds the compounds of Formulas I or II alone or in combination with other commercial
25 herbicides, insecticides, or fungicides. The following list exemplifies some of the herbicides suitable for use in mixtures. A mixture of one or more of the following herbicides with a compound of this invention may be particularly useful for weed control. Examples
30 of other herbicides with which compounds of this invention can be formulated are: acetochlor, acifluorfen, acrolein, 2-propenal, alachlor, ametryn, amidosulfuron, ammonium sulfamate, amitrole, anilofos, asulam, atrazine, barban, benefin, bensulfuron methyl, bensulide, bentazon, benzofluor, benzoylprop, bifenox,
35

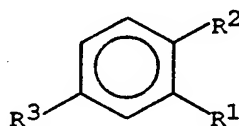
bromacil, bromoxynil, bromoxynil heptanoate, bromoxynil octanoate, butachlor, buthidazole, butralin, butylate, cacodylic acid, 2-chloro-*N,N*-di-2-propenylacetamide, 2-chloroallyl diethyldithiocarbamate, chloramben, 5 chlorbromuron, chloridazon, chlorimuron ethyl, chlormethoxynil, chlornitrofen, chloroxuron, chlorpropham, chlorsulfuron, chlortoluron, cinmethylin, cinosulfuron, clethodim, clomazone, cloproxydim, clopyralid, calcium salt of methylarsonic acid, 10 cyanazine, cycloate, cycluron, cyperquat, cyprazine, cyprazole, cypromid, dalapon, dazomet, dimethyl 2,3,5,6-tetrachloro-1,4-benzenedicarboxylate, desmedipham, desmetryn, dicamba, dichlobenil, dichlorprop, diclofop, diethatyl, difenzoquat, 15 diflufenican, dimepiperate, dinitramine, dinoseb, diphenamid, dipropetryn, diquat, diuron, 2-methyl-4,6-dinitrophenol, disodium salt of methylarsonic acid, dymron, endothall, *S*-ethyl dipropylcarbamothioate, esprocarb, ethalfluralin, ethametsulfuron methyl, 20 ethofumesate, fenac, fenoxaprop, fenuron, salt of fenuron and trichloroacetic acid, flamprop, fluazifop, fluazifop-P, fluchloralin, flumesulam, flumipropyn, fluometuron, fluorochloridone, fluorodifen, fluoro-glycofen, flupoxam, fluridone, fluroxypyr, 25 fluzasulfuron, fomesafen, fosamine, glyphosate, haloxyfop, hexaflurate, hexazinone, imazamethabenz, imazapyr, imazaquin, imazamethabenz methyl, imazethapyr, imazosulfuron, ioxynil, isopropalin, isoproturon, isouron, isoxaben, karbutilate, lactofen, 30 lenacil, linuron, metobenzuron, metsulfuron methyl, methylarsonic acid, monoammonium salt of methylarsonic acid, (4-chloro-2-methylphenoxy)acetic acid, *S,S'*-dimethyl-2-(difluoromethyl)-4-(2-methylpropyl)-6-(trifluoromethyl)-3,5-pyridinedicarbothioate, mecoprop, 35 mefenacet, mefluidide, methalpropalin, metha-

- benzthiazuron, metham, methazole, methoxuron, metolachlor, metribuzin, 1,2-dihydropyridazine-3,6-dione, molinate, monolinuron, monuron, monuron salt and trichloroacetic acid, monosodium salt of methylarsonic acid, napropamide, naptalam, neburon, nicosulfuron, nitralin, nitrofen, nitrofluorfen, norea, norflurazon, oryzalin, oxadiazon, oxyfluorfen, paraquat, pebulate, pendimethalin, perfluidone, phenmedipham, picloram, 5-[2-chloro-4-(trifluoromethyl)phenoxy]-2-nitroacetophenone oxime-O-acetic acid methyl ester, pretilachlor, primisulfuron, procyazine, profluralin, prometon, prometryn, pronamide, propachlor, propanil, propazine, propham, prosulfalin, prynachlor, pyrazolate, pyrazon, pyrazosulfuron ethyl, quinchlorac, quizalofop ethyl, rimsulfuron, secbumeton, sethoxydim, siduron, simazine, 1-(a,a-dimethylbenzyl)-3-(4-methylphenyl)urea, sulfometuron methyl, trichloroacetic acid, tebuthiuron, terbacil, terbutylchlor, terbutylazine, terbutol, terbutryn, thifensulfuron methyl, thiobencarb, triallate, trialkoxydim, triasulfuron, tribenuron methyl, triclopyr, tridiphan, trifluralin, trimeturon, (2,4-dichlorophenoxy)acetic acid, 4-(2,4-dichlorophenoxy)butanoic acid, vernolate, and xylachlor.
- Compositions comprising a combination of a compound of Formula I or II with one or more of the following herbicides may be particularly useful for weed control in rice: bensulfuron methyl, N-[2-(2-methoxyethoxyphenyl sulfonyl)-N'-4,6-dimethoxy-1,3,5-triazin-2-ylurea, N-[(4,6-dimethoxypyrimidin-2-yl)amino]carbonyl]-1-methyl-4-(2-methyl-2H-tetrazol-5-yl)-1H-pyrazole-5-sulfonamide, mefenacet, metsulfuron methyl, molinate, pyrazosulfuron ethyl, quinclorac, N-[(4,6-dimethoxy-2-pyrimidinyl)amino]-carbonyl]-3-methyl-5-(2,2,2-trifluoroethyl)-4-isothiazole-

- sulfonamide, 3-chloro-N-[[(4,6-dimethoxy-2-pyrimidinyl)amino]carbonyl]imidazo-[1,2-a]pyridine-3-sulfonamide, S,S-dimethyl 2-(difluoromethyl)-4-(2-methylpropyl)-6-(trifluoromethyl)-3,5-pyridine-carbothioate, and butachlor.

Selective herbicidal properties of compositions comprising the compounds of Formulas I or II were discovered in greenhouse tests as described below.

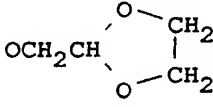
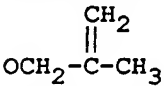
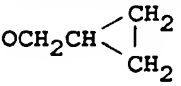
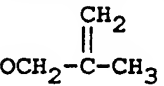
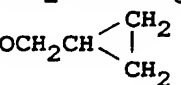
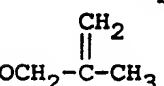
INDEX TABLE A

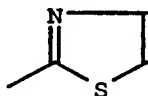
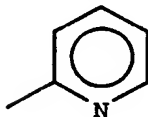
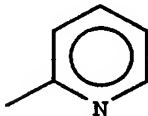
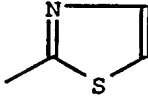


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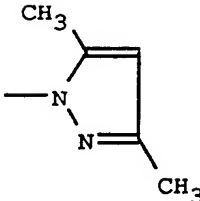
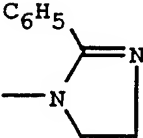
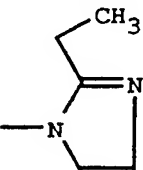
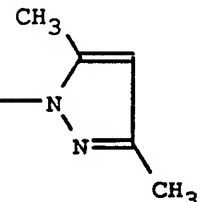
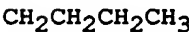
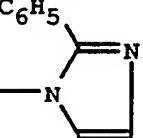
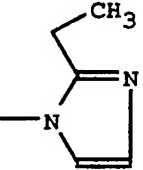
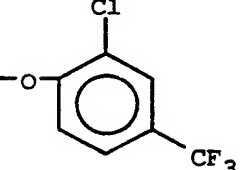
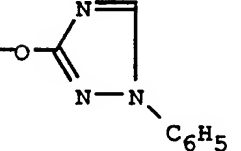
Compounds of Formula II wherein:

| <u>COMPD</u> | <u>R¹</u> | <u>R²</u> | <u>R³</u> | <u>mp (°C)</u> |
|--------------|----------------------|---------------------------------|--|----------------|
| 1 | Cl | CO ₂ CH ₃ | OCH ₂ CH(CH ₃) ₂ | oil |
| 2 | Cl | CO ₂ H | OCH ₂ CH(CH ₃) ₂ | 82-84 |
| 3 | Cl | C(O)NH ₂ | OCH ₂ CH(CH ₃) ₂ | 129-30 |
| 4 | NO ₂ | C≡N | C ₆ H ₅ | 117-118 |
| 5 | NO ₂ | C(O)NH ₂ | C ₆ H ₅ | 193.5-195.5 |
| 6 | NO ₂ | CO ₂ H | C ₆ H ₅ | 203-206 |
| 7 | NO ₂ | CO ₂ CH ₃ | C ₆ H ₅ | 58-60.5 |
| 8 | Cl | C(O)NH ₂ | OCH ₂ C ₆ H ₅ | 137-140 |
| 9 | Cl | C(O)NH ₂ | OCH ₂ CH ₂ CH(CH ₃) ₂ | 137-139 |
| 10 | Cl | CO ₂ CH ₃ | OCH ₂ C ₆ H ₅ | 47-51 |
| 11 | Cl | CO ₂ H | OCH ₂ C ₆ H ₅ | 135-138 |
| 12 | Cl | CO ₂ H | OCH ₂ CH ₂ CH(CH ₃) ₂ | 76-82 |
| 13 | Cl | CO ₂ CH ₃ | OCH ₂ CH ₂ CH(CH ₃) ₂ | oil |
| 14 | Cl | CO ₂ CH ₃ | | oil |
| 15 | Cl | CO ₂ H | | 123-127 |

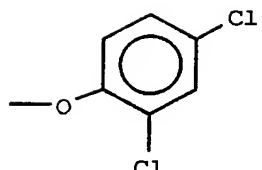
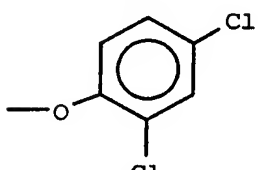
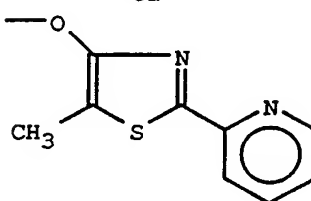
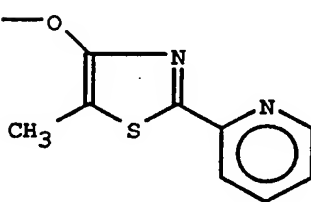
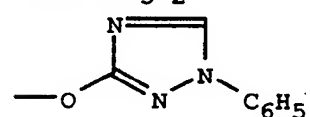
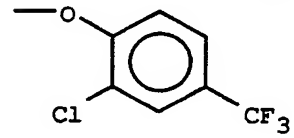
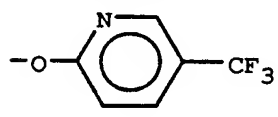
| | | | | |
|----|-----------------|---|--|---------|
| 16 | Cl | CO ₂ CH ₃ | OCH ₂ C(CH ₃)(OCH ₃) ₂ | 113-118 |
| 17 | Cl | CHO | OCH ₂ CH(CH ₃) ₂ | oil |
| 18 | Cl | C(O)NH ₂ |  | 134-136 |
| 19 | Cl | CO ₂ CH ₃ | OCH ₂ (2,6-F-C ₆ H ₃) | 82-86 |
| 20 | Cl | CO ₂ CH ₃ |  | oil |
| 21 | Cl | CO ₂ CH ₃ | OCH ₂ CO ₂ CH ₃ | oil |
| 22 | Cl | CH ₂ OH | OCH ₂ CH(CH ₃) ₂ | oil |
| 23 | Cl | CO ₂ CH ₃ |  | oil |
| 24 | Cl | CH=N-OH | OCH ₂ CH(CH ₃) ₂ | 79-81 |
| 25 | Cl | CO ₂ H | OCH ₂ (2,6-FC ₆ H ₃) | 167-171 |
| 26 | Cl | CO ₂ H |  | 89-92 |
| 27 | Cl | C(O)NH ₂ | OCH ₂ (2,6-FC ₆ H ₃) | 175-176 |
| 28 | Cl | C(O)NH ₂ |  | 149-151 |
| 29 | Cl | C(O)NH ₂ |  | 115-117 |
| 43 | Cl | CO ₂ CH ₂ CH(CH ₃) ₂ | OCH ₂ CH(CH ₃) ₂ | 105-107 |
| 44 | Cl | C≡N | OCH ₂ CH(CH ₃) ₂ | 37-41 |
| 45 | Cl | C(NH ₂)=N-OH (trans) | OCH ₂ CH(CH ₃) ₂ | 81-84 |
| 46 | Cl | C(NH ₂)=NOH (cis) | OCH ₂ CH(CH ₃) ₂ | 110-124 |
| 47 | Cl | C(O)NHCH ₂ CF ₃ | OCH ₂ CH(CH ₃) ₂ | 94-97 |
| 48 | Cl | C(O)NHOCH ₃ | OCH ₂ CH(CH ₃) ₂ | 82-85 |
| 49 | NO ₂ | C≡N | CH=CHCO ₂ CH ₃ | 160-165 |
| 50 | NO ₂ | C(O)NH ₂ | CH=CHCO ₂ CH ₃ | 150-177 |
| 51 | Cl | C(NH ₂)=N-OC(O)OCH ₃ | OCH ₂ CH(CH ₃) ₂ | 98-101 |
| 52 | Cl | C(Cl)=N-OCH ₃ | OCH ₂ CH(CH ₃) ₂ | oil |
| 53 | Cl | CH=CBr ₂ | OCH ₂ CH(CH ₃) ₂ | oil |
| 54 | Cl | C≡N | 3-CF ₃ C ₆ H ₄ | 92-98 |
| 55 | Cl | C(O)NH ₂ | 3-CF ₃ C ₆ H ₄ | 138-145 |
| 56 | Cl | C(O)NH ₂ | 3-ClC ₆ H ₄ | 122-128 |
| 57 | Cl | C(O)NH ₂ | C ₆ H ₅ | 166-170 |

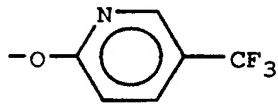
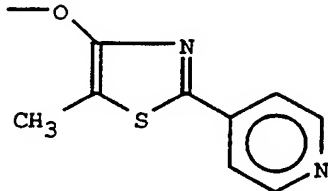
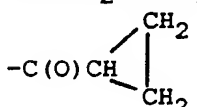
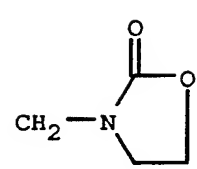
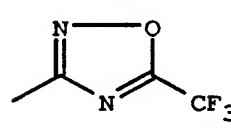
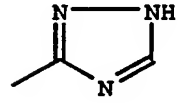
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|----|----|--------------------------|---|---------|
| 58 | Cl | C(O)NH ₂ | 4-OCH ₃ C ₆ H ₄ | 180-184 |
| 59 | Cl | C(O)NH ₂ | 4-ClC ₆ H ₄ | 198-202 |
| 60 | Cl | C(O)NH ₂ | 4-FC ₆ H ₄ | 167-170 |
| 61 | Cl | C(O)NH ₂ | 4-BrC ₆ H ₄ | >250 |
| 62 | Cl | C(O)NH ₂ | (4-CH ₂ CH ₂ CH ₂ CH ₃)C ₆ H ₄ | 196-200 |
| 63 | Cl | C≡N | C≡CCH ₂ CH ₂ CH ₃ | oil |
| 64 | Br | CHO | CH ₂ CH ₂ CH ₂ CH ₃ | oil |
| 65 | Cl | C≡N | CH ₂ CH ₂ CH ₂ CH ₂ CH ₃ | oil |
| 66 | Cl | C≡N | CH ₂ CH ₂ CH ₂ CH ₃ | oil |
| 67 | Cl | C≡N | CH ₂ CH(CH ₃) ₂ | oil |
| 68 | Cl | C≡N | CH ₂ CH ₂ CH(CH ₃) ₂ | oil |
| 69 | Cl | C≡N | CH ₂ Si(CH ₃) ₃ | oil |
| 70 | Cl | C(O)NH ₂ | CH ₂ CH ₂ CH ₂ CH ₂ CH ₃ | 91-99 |
| 71 | Cl | C(O)NH ₂ | CH ₂ CH ₂ CH ₂ CH ₃ | 118-121 |
| 72 | Cl | C(O)NH ₂ | CH ₂ CH ₂ CH(CH ₃) ₂ | 88-107 |
| 73 | Cl | C(O)NH ₂ | CH ₂ CH(CH ₃) ₂ | 97-107 |
| 74 | Cl | C≡N | C≡C-Si(CH ₃) ₃ | 106-109 |
| 75 | Cl | C(NH ₂)=N-OH | CH ₂ CH ₂ CH(CH ₃) ₂ | gum |
| 76 | Cl | C≡N | 2-C ₄ H ₃ O | 79-83 |
| 77 | Cl | C(O)NH ₂ | 2-C ₄ H ₃ O | 86-125 |
| 78 | Cl | C≡N |  | 116-131 |
| 79 | Cl | C≡N |  | 120-135 |
| 80 | Cl | C(O)NH ₂ |  | 164-174 |
| 81 | Cl | (CO)NH ₂ |  | 168-172 |

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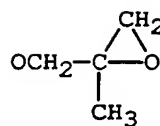
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|----|----|---------------------------------|---|---------|
| 82 | Cl | $\text{C}\equiv\text{N}$ |  <chem>Cc1c(C)ncn1</chem> | 111-112 |
| 83 | Cl | $\text{C}\equiv\text{N}$ |  <chem>c1ccccc1c2ncn2</chem> | 130-141 |
| 84 | Cl | $\text{C}\equiv\text{N}$ |  <chem>Cc1c[nH]cn1</chem> | 112-115 |
| 85 | Cl | $\text{C}(\text{O})\text{NH}_2$ |  <chem>Cc1c(C)nc(C(=O)N)n1</chem> | 60-83 |
| 86 | Br | $\text{CH}=\text{N}-\text{OH}$ |  <chem>BrC1=CC=C(C=C1)CC2=CN=C[NH]2</chem> | oil |
| 87 | Cl | $\text{C}(\text{O})\text{NH}_2$ |  <chem>c1ccccc1c2nc(C(=O)N)cn2</chem> | 135-150 |
| 88 | Cl | $(\text{CO})\text{NH}_2$ |  <chem>Cc1c[nH]c(C(=O)N)n1</chem> | 83-98 |
| 89 | Cl | $\text{C}\equiv\text{N}$ |  <chem>Clc1cc(C(F)(F)F)ccc1Oc2ncn2</chem> | oil |
| 90 | Cl | $\text{C}\equiv\text{N}$ |  <chem>c1ccccc1n2nc(C(=O)N2)Oc3cc(Cl)cc(C(F)(F)F)c3</chem> | 117-121 |

128

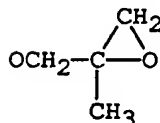
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|-----|----|--------------|--|---------|
| 91 | Cl | $C\equiv N$ |  | oil |
| 92 | Cl | $C(O)NH_2$ |  | >250 |
| 93 | Cl | $C\equiv N$ |  | 163-168 |
| 94 | Cl | $C(O)NH_2$ |  | 151-164 |
| 95 | Cl | $C\equiv N$ | $-O-N=CH-C_6H_5$ | oil |
| 96 | Cl | $C\equiv N$ | $-O-N=C(CH_3)_2$ | 125-128 |
| 97 | Cl | $C(O)NH_2$ |  | 161-163 |
| 98 | Cl | $C(O)NH_2$ |  | 163-172 |
| 99 | Cl | $C(O)NH_2$ | $-O-N=C(CH_3)_2$ | 129-130 |
| 100 | Cl | $C\equiv N$ | $CH=CHOCH_3$ | 62-70 |
| 101 | Cl | $C\equiv N$ | $-OCH_2C(O)N(CH_3)C_6H_5$ | 105-109 |
| 102 | Cl | $C(CN)=N-OH$ | $-OCH_2CH(CH_3)_2$ | oil |
| 103 | Cl | $C(O)NH_2$ |  | 108-120 |
| 104 | Cl | $C(O)NH_2$ | $-OCH_2C(O)N(CH_3)C_6H_5$ | 130-134 |

| | | | | |
|-----|-----------------|---|--|---------|
| 105 | Cl | $C\equiv N$ |  | 58-69 |
| 106 | Cl | $C\equiv N$ |  | 170-172 |
| 107 | NO ₂ | $C\equiv N$ | $C(O)CH_2CH(CH_3)_2$ | oil |
| 108 | NO ₂ | $C\equiv N$ |  | 106-117 |
| 109 | Cl |  | $-OCH_2CH(CH_3)_2$ | 55-64 |
| 110 | Cl |  | $-OCH_2CH(CH_3)_2$ | oil |
| 111 | Cl |  | $-OCH_2CH(CH_3)_2$ | 124-127 |
| 112 | Cl | $C(O)NHNHC(CH_3)_3$ | $-OCH_2CH(CH_3)_2$ | 50-64 |
| 113 | Cl | $C(O)NHN-C(O)NHCH_2CH_3$ $\quad\quad\quad $ $\quad\quad\quad C(CH_3)_3$ | $-OCH_2CH(CH_3)_2$ | oil |
| 114 | Cl | $C\equiv N$ | $C(O)CH(OCH_3)_2$ | 135-141 |
| 115 | Cl | $C\equiv CH$ | $OCH_2CH(CH_3)_2$ | oil |
| 116 | Cl | CH_2Cl | $OCH_2CH(CH_3)_2$ | oil |
| 117 | Cl | CH_2CN | $OCH_2CH(CH_3)_2$ | oil |
| 118 | Cl | $CH_2C(O)NH_2$ | $OCH_2CH(CH_3)_2$ | 102-110 |
| 119 | I | $C(O)OH$ | $CH_2CH_2CH_2CH_3$ | 82-89 |
| 121 | Br | $C\equiv N$ | $OCH_2CH(CH_3)_2$ | oil |
| 122 | Br | $C(O)NH_2$ | $OCH_2CH(CH_3)_2$ | 98-111 |
| 123 | NO ₂ | $C\equiv N$ | $OCH_2CH(CH_3)_2$ | oil |
| 124 | NO ₂ | $C(O)NH_2$ | $OCH_2CH(CH_3)_2$ | 123-125 |

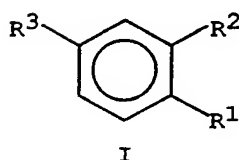
130

125 Cl $\text{C}\equiv\text{N}$ 

78-81

126 Cl $\text{C}(\text{O})\text{NH}_2$ 

89-91

INDEX TABLE B

I

Compounds of Formula I wherein:

| <u>CMPD</u> | R^1 | R^2 | R^3 | <u>mp ($^{\circ}\text{C}$)</u> |
|-------------|---------------|--|--|---|
| 30 | Br | CO_2CH_3 | $\text{OCH}_2\text{CH}(\text{CH}_3)_2$ | oil |
| 31 | Br | CO_2H | $\text{OCH}_2\text{CH}(\text{CH}_3)_2$ | 105-109 |
| 32 | Br | $\text{C}(\text{O})\text{NH}_2$ | $\text{OCH}_2\text{CH}(\text{CH}_3)_2$ | 135-137 |
| 38 | NO_2 | $\text{CO}_2\text{CH}_2\text{CH}(\text{CH}_3)_2$ | $\text{OCH}_2\text{CH}(\text{CH}_3)_2$ | 38-42 |
| 39 | NO_2 | CO_2H | $\text{OCH}_2\text{CH}(\text{CH}_3)_2$ | oil |
| 40 | NO_2 | CHO | $\text{OCH}_2\text{CH}(\text{CH}_3)_2$ | 45-48 |
| 41 | NO_2 | $\text{HC}=\text{N}-\text{OH}$ | $\text{OCH}_2\text{CH}(\text{CH}_3)_2$ | 96-102 |
| 42 | NO_2 | $\text{C}\equiv\text{N}$ | $\text{OCH}_2\text{CH}(\text{CH}_3)_2$ | 68-77 |
| 120 | NO_2 | $\text{CH}=\text{C}(\text{CN})_2$ | $\text{OCH}_2\text{CH}(\text{CH}_3)_2$ | 78-85 |

INDEX TABLE C

Spectral Data

CMPD

1 NMR (CDCl_3): ppm δ 7.88 (d, 1H); 7.0 (s, 1H); 6.8 (d, 1H);
 3.89 (s, 3H); 3.74 (d, 2H); 2.0 (m, 1H); 1.035
 (d, 6H)

IR (Neat): 1730 cm^{-1} ($\text{C}=\text{O}$)

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- 13 NMR (CDCl₃): ppm δ 7.87 (d, 1H); 6.96 (s, 1H); 6.8 (d, 1H); 4.0 (m, 2H); 3.89 (s, 3H); 1.8 (m, 1H); 1.67 (m, 2H); 0.97 (d, 6H)
IR (Neat): 1725 cm⁻¹ (C=O)
- 14 NMR (CDCl₃): ppm δ 7.88 (d, 1H); 7.0 (s, 1H); 6.8 (d, 1H); 5.3 (m, 1H); 4.07 (m, 4H); 4.06 (m, 2H); 3.89 (s, 3H)
IR (Neat): 1720 cm⁻¹ (C=O)
- 17 NMR (CDCl₃): ppm δ 10.5 (s, 1H); 7.88 (d, 1H); 6.93 (s, 1H); 6.8 (d of d, 1H); 3.86 (d, 2H); 2.1 (m, 1H); 1.05 (d, 6H)
IR (Neat): 1680 cm⁻¹ (C=O)
- 20 NMR (CDCl₃): ppm δ 7.87 (d, 1H); 6.98 (s, 1H); 6.8 (d of d, 1H); 5.0 (s, 2H); 4.64 (s, 2H); 3.9 (s, 3H); 1.82 (s, 3H)
IR (Neat): 1725 cm⁻¹ (C=O)
- 21 NMR (CDCl₃): ppm δ 7.89 (d, 1H); 6.98 (s, 1H); 6.8 (d of d, 1H); 4.68 (s, 2H); 3.9 (s, 3H); 3.88 (s, 3H)
IR (Neat): 1755; 1720 cm⁻¹ (C=O)
- 22 NMR (CDCl₃): ppm δ 7.34 (d, 1H); 6.93 (s, 1H); 6.8 (d of d, 1H); 4.77 (d, 2H); 3.71 (d, 2H); 2.15 (m, 1H); 1.8 (s, 1H); 1.026 (d, 6H)
IR (Neat): 3400 cm⁻¹ (C=O)
- 23 NMR (CDCl₃): ppm δ 7.87 (d, 1H); 6.98 (s, 1H); 6.8 (m, 1H); 5.0 (d, 2H); 4.64 (s, 2H); 3.9 (s, 3H); 1.82 (s, 3H)
IR (Neat): 1725 cm⁻¹ (C=O)
- 30 NMR (CDCl₃): ppm δ 7.53 (d, 1H); 7.31 (m, 1H); 6.8 (d of d, 1H); 3.92 (s, 3H); 3.7 (d, 2H); 2.0 (m, 1H); 1.03 (d, 6H)
IR (Neat): 1740 cm⁻¹ (C=O)
- 39 NMR (CDCl₃): ppm δ 8.0 (d, 1H); 7.5 (b, s, 1H); 7.2 (s, 1H); 6.8 (d, 1H); 3.8 (d, 2H); 2.0 (m, 1H); 1.02 (d, 6H)
IR (Neat): 3400, 1712 cm⁻¹

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- 52 NMR (CDCl₃): ppm δ 7.37 (d, 1H); 6.95 (s, 1H); 6.8 (d, 1H); 4.0 (s, 3H); 3.73 (d, 2H); 2.1 (m, 1H); 1.02 (d, 6H)
- IR (Neat): 1601 (C=N) cm⁻¹
- 53 NMR (CDCl₃): ppm δ 7.6 (d, 1H); 7.5 (s, 1H); 6.93 (s, 1H); 6.8 (d, 1H); 3.71 (d, 2H); 2.08 (m, 1H); 1.01 (d, 6H)
- 63 NMR (CDCl₃): ppm δ 7.568 (m, 2H); 7.52 (d, 1H); 2.413 (m, 2H); 1.64 (m, 2H); 1.047 (t, 3H)
- IR (Neat): 2229 (C \equiv N) cm⁻¹
- 64 NMR (CDCl₃): ppm δ 10.4 (s, 1H); 7.84 (d, 1H); 7.468 (s, 1H); 7.25 (d, 1H); 2.63 (m, 2H); 1.37 (m, 2H); 0.94 (m, 3H)
- IR (Neat): 2748; 1692 (C=O) cm⁻¹
- 65 NMR (CDCl₃): ppm δ 7.55 (d, 1H); 7.32 (s, 1H); 7.19 (d, 1H); 2.62 (t, 2H); 1.62 (m, 2H); 1.32 (m, 4H); 0.89 (t, 3H)
- IR (Neat): 2231 (C \equiv N) cm⁻¹
- 66 NMR (CDCl₃): ppm δ 7.56 (d, 1H); 7.32 (s, 1H); 7.198 (d, 1H); 2.64 (t, 2H); 1.602 (m, 2H); 1.38 (m, 2H); 0.93 (t, 3H)
- IR (Neat): 2231 cm⁻¹ (C \equiv N)
- 67 NMR (CDCl₃): ppm δ 7.57 (d, 1H); 7.3 (s, 1H); 7.151 (d, 1H); 2.51 (d, 2H); 1.9 (m, 1H); 0.91 (d, 6H)
- IR (Neat): 2210 (C \equiv N) cm⁻¹
- 68 NMR (CDCl₃): ppm δ 7.55 (d, 1H); 7.32 (s, 1H); 7.198 (d, 1H); 2.646 (t, 2H); 1.5-1.6 (m, 3H); 0.93 (d, 6H)
- IR (Neat): 2231 (C \equiv N) cm⁻¹
- 69 NMR (CDCl₃): ppm δ 7.48 (d, 1H); 7.1 (s, 1H); 6.95 (d, 1H); 2.14 (s, 2H); 0.006 (s, 9H)
- IR (Neat): 2210 cm⁻¹ (C \equiv N)
- 75 NMR (CDCl₃): ppm δ 7.41 (d, 1H); 7.23 (s, 1H); 7.08 (d, 1H); 6.5 (bs, 1H); 4.94 (bs, 2H); 2.6 (t, 2H); 1.6 (m, 1H); 1.49 (m, 2H); 0.93 (d, 6H)

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- IR (Nujol): 1649 (C≡N) cm^{-1}
- 86 NMR (CDCl_3): ppm δ 8.5 (s, 1H); 8.4 (s, 1H); 7.7 (d, 1H); 7.4 (s, 1H); 2.6 (m, 2H); 1.6 (m, 2H); 1.27 (m, 2H); .97 (m, 3H)
- 89 NMR (CDCl_3): ppm δ 7.8 (s, 1H); 7.6 (m, 2H); 7.26 (m, 1H); 7.0 (s, 1H); 6.8 (d, 1H)
- IR (Neat): 2232 cm^{-1} (C≡N)
- 91 NMR (CDCl_3): ppm δ 7.6 (d, 1H); 7.53 (s, 1H); 7.32 (d, 1H); 7.11 (d, 1H); 7.09 (s, 1H); 6.83 (d, 1H)
- IR (Neat): 2230 cm^{-1} (C≡N)
- 95 NMR (CDCl_3): ppm δ 7.65 (m, 4H); 7.48 (m, 3H); 7.26 (m, 1H); 7.1 (t, 1H) + isomer
- IR (Neat): 2229 cm^{-1} (C≡N), 1631 (C=N) cm^{-1}
- 102 NMR (CDCl_3): ppm δ 7.42 (d, 1H); 6.99 (s, 1H); 6.83 (m, 1H); 3.74 (d, 2H); 2.08 (m, 1H); 1.02 (d, 6H)
- IR (Neat): 3313 cm^{-1} (OH), 2195 cm^{-1} (C≡N)
- 107 NMR (CDCl_3): ppm δ 8.82 (s, 1H); 8.34 (d, 1H); 8.05 (d, 1H); 2.92 (d, 2H); 2.3 (m, 1H); 1.03 (d, 6H)
- IR (Neat): 2234 (C≡N); 1695 (C=O) cm^{-1}
- 110 NMR (CDCl_3): ppm δ 7.55 (d, 1H); 7.0 (s, 1H); 6.85 (d, 1H); 3.76 (d, 2H); 2.1 (m, 1H); 1.04 (d, 6H)
- IR (Neat): 1599, 1556 (C=N) cm^{-1}
- 113 NMR (CDCl_3): ppm δ 9.125 (s, 1H); 7.4 (d, 1H); 6.866 (s, 1H); 6.8 (d, 1H); 5.3 (t, 1H); 3.72 (d, 2H); 3.01 (m, 2H); 2.08 (m, 1H); 1.4 (s, 9H); 1.0 (m, 9H)
- IR (Neat): 1700, 1602 (C=O) cm^{-1}
- 115 NMR (CDCl_3): ppm δ 7.4 (d, 1H); 6.95 (s, 1H); 6.78 (d, 1H); 3.7 (d, 2H); 3.27 (s, 1H); 2.08 (m, 1H); 1.01 (d, 6H)
- IR (Neat):
- 116 NMR (CDCl_3): ppm δ 7.33 (d, 1H); 6.945 (s, 1H); 6.8 (d, 1H); 4.67 (s, 2H); 3.7 (d, 2H); 2.04 (m, 1H); 1.01 (d, 6H)

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117 NMR (CDCl₃): ppm δ 7.38 (d, 1H); 6.95 (s, 1H); 6.83 (d, 1H); 3.76 (s, 2H); 3.7 (d, 2H); 2.08 (m, 1H); 1.02 (d, 6H)

IR (Neat): 2251 (C \equiv N) cm⁻¹

121 NMR (CDCl₃): ppm δ 7.55 (d, 1H); 7.18 (s, 1H); 6.9 (d, 1H); 3.75 (d, 2H); 2.05 (m, 1H); 1.03 (d, 6H)

IR (Neat): 2229 (C \equiv N) cm⁻¹

123 NMR (CDCl₃): ppm δ 7.79 (d, 2H); 7.27 (m, 1H); 3.87 (d, 2H); 2.1 (m, 1H); 1.06 (d, 6H)

IR (Neat): 2229 (C \equiv N) cm⁻¹

TEST A

Seeds of barley (*Hordeum vulgare*), barnyardgrass (*Echinochloa crus-galli*), bedstraw (*Galium aparine*), blackgrass (*Alopecurus myosuroides*), bush bean (5 (*Phaseolus vulgaris*), cheatgrass (*Bromus secalinus*), chickweed (*Stellaria media*), cocklebur (*Xanthium pensylvanicum*), corn (*Zea mays*), cotton (*Gossypium hirsutum*), crabgrass (*Digitaria* spp.), giant foxtail (*Setaria faberii*), lambsquarters (*Chenopodium album*), 10 morningglory (*Ipomoea hederacea*), rape (*Brassica napus*), rice (*Oryza sativa*), sicklepod (*Cassia obtusifolia*), sorghum (*Sorghum bicolor*), soybean (*Glycine max*), sugar beet (*Beta vulgaris*), velvetleaf (*Abutilon theophrasti*), wheat (*Triticum aestivum*), wild 15 buckwheat (*Polygonum convolvulus*), wild oat (*Avena fatua*) and purple nutsedge (*Cyperus rotundus*) tubers were planted and treated preemergence with test chemicals dissolved in a non-phytotoxic solvent. At the same time, these crop and weed species were also 20 treated with postemergence applications of test chemicals. Plants ranged in height from two to eighteen cm (one to four leaf stage) for postemergence treatments. Treated plants and controls were maintained in a greenhouse for twelve to sixteen days, 25 after which all species were compared to controls and visually evaluated. Plant response ratings, summarized in Table A, are based on a scale of 0 to 10 where 0 is no effect and 10 is complete control. A dash (-) response means no test result.

| Table A | COMPOUND | | | | | Table A | COMPOUND | | | | |
|----------------|----------|----|----|---|---|----------------|----------|----|----|---|---|
| Rate 2000 g/ha | 1 | 4 | 5 | 6 | 7 | Rate 2000 g/ha | 1 | 4 | 5 | 6 | 7 |
| POSTEMERGENCE | | | | | | PREEMERGENCE | | | | | |
| Barley | 0 | - | - | - | - | Barley | 0 | - | - | - | - |
| Barnyardgrass | 1 | 10 | 10 | 8 | 6 | Barnyardgrass | 0 | 10 | 10 | 8 | 8 |
| Bedstraw | 2 | - | - | - | - | Bedstraw | 0 | - | - | - | - |
| Blackgrass | 0 | - | - | - | - | Blackgrass | 0 | - | - | - | - |
| Bush bean | - | 0 | 1 | 6 | 2 | Cheatgrass | 0 | - | - | - | - |
| Cheatgrass | 0 | - | - | - | - | Chickweed | - | - | - | - | - |
| Chickweed | 4 | - | - | - | - | Cocklebur | 0 | 0 | 10 | - | 0 |
| Cocklebur | 0 | 0 | 1 | 1 | 1 | Corn | 0 | 0 | 9 | 2 | 0 |
| Corn | 0 | 0 | 0 | 0 | 1 | Cotton | 0 | - | - | - | - |
| Cotton | 0 | 0 | 1 | 1 | 2 | Crabgrass | 0 | 0 | 0 | 0 | 4 |
| Crabgrass | 1 | 0 | 0 | 5 | 1 | Giant foxtail | 0 | - | - | - | - |
| Giant foxtail | 0 | - | - | - | - | Lambsquarter | - | - | - | - | - |
| Lambsquarter | - | - | - | - | - | Morningglory | 0 | 0 | 10 | 0 | 0 |
| Morningglory | 2 | 0 | 0 | 1 | 2 | Nutsedge | 0 | 0 | 0 | 0 | 0 |
| Nutsedge | 0 | 0 | 0 | 0 | 0 | Rape | 0 | - | - | - | - |
| Rape | 0 | - | - | - | - | Rice | 0 | 0 | 3 | 1 | 0 |
| Rice | 0 | 0 | 0 | 0 | 1 | Sicklepod | - | 0 | 1 | 0 | 0 |
| Sicklepod | - | 0 | 0 | 1 | 1 | Sorghum | 0 | 0 | 0 | 0 | 0 |
| Sorghum | 0 | 0 | 0 | 0 | 1 | Soybean | 0 | 0 | 0 | 0 | 0 |
| Soybean | 0 | 0 | 0 | 1 | 1 | Sugar beet | - | - | - | - | - |
| Sugar beet | 0 | - | - | - | - | Velvetleaf | 0 | - | - | - | - |
| Velvetleaf | 0 | - | - | - | - | Wheat | 0 | 0 | 0 | 0 | 0 |
| Wheat | 0 | 0 | 0 | 0 | 1 | Wild buckwheat | 0 | - | - | - | - |
| Wild buckwheat | 0 | - | - | - | - | Wild oat | 0 | 0 | 0 | 0 | 0 |
| Wild oat | 2 | 0 | 0 | 0 | 1 | | | | | | |

Table A

[illegible]

Table A

[illegible]

Table A

| Rate | 400 g/ha | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 | 101 | 103 | 104 | 105 | 106 | 107 | 108 | 109 | 110 | 111 | 112 | 113 | 114 | 115 | 116 |
|----------------|----------|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| POSTEMERGENCE | | | | | | | | | | | | | | | | | | | | | | | | |
| Barley | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Barnyardgrass | | 0 | 0 | 1 | 3 | 0 | 2 | 8 | 3 | 5 | 0 | 8 | 2 | 0 | 2 | 3 | 1 | 9 | 6 | 9 | 5 | 0 | 3 | 4 |
| Bedstraw | | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Blackgrass | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Bush bean | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Cheatgrass | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| Chickweed | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cocklebur | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Corn | | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| Cotton | | 0 | 0 | 0 | 0 | 2 | 4 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Crabgrass | | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 3 | 0 | 0 | 1 |
| Giant foxtail | | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lambsquarter | | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | - | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Morningglory | | 0 | 0 | 0 | 0 | 0 | 1 | 0 | - | 7 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nutsedge | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Rape | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Rice | | - | - | - | - | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 |
| Sicklepod | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Sorghum | | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Soybean | | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Sugar beet | | 0 | 0 | 2 | 0 | 2 | 3 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Velvetleaf | | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Wheat | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Wild buckwheat | | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| Wild oat | | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| Table A | COMPOUND | | |
|---------------|----------|-----|-----|
| Rate 400 g/ha | 117 | 118 | 120 |
| POSTEMERGENCE | | | |
| Barley | 0 | 0 | 0 |
| Barnyardgrass | 2 | 2 | 2 |
| Bedstraw | 2 | 0 | 0 |
| Blackgrass | 1 | 0 | 0 |
| Bush bean | - | - | - |
| Cheatgrass | 0 | 0 | 0 |
| Chickweed | 3 | 0 | 0 |
| Cocklebur | 0 | 0 | 0 |
| Corn | 0 | 0 | 0 |
| Cotton | 0 | 0 | 0 |
| Crabgrass | 0 | 0 | 1 |
| Giant foxtail | 0 | 0 | 1 |
| Lambsquarter | 6 | - | 3 |

| Table A | COMPOUND | | |
|----------------|----------|-----|-----|
| Rate 400 g/ha | 117 | 118 | 120 |
| POSTEMERGENCE | | | |
| Morningglory | 0 | 0 | 0 |
| Nutsedge | 0 | 0 | 0 |
| Rape | 0 | 0 | 0 |
| Rice | 0 | 0 | 2 |
| Sicklepod | - | - | - |
| Sorghum | 0 | 0 | 2 |
| Soybean | 0 | 0 | 1 |
| Sugar beet | 0 | - | 0 |
| Velvetleaf | 0 | 0 | 0 |
| Wheat | 0 | 0 | 0 |
| Wild buckwheat | 2 | 0 | 0 |
| Wild oat | 0 | 0 | 0 |

| Table A | | COMPOUND | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------|----------|----------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--|--|
| Rate | 400 g/ha | 38 | 39 | 40 | 41 | 42 | 44 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | | |
| PREEMERGENCE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Barley | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Barnyardgrass | | 0 | 0 | 0 | 0 | 1 | 7 | 8 | 10 | 5 | 8 | 0 | 0 | 0 | 8 | 3 | 0 | 7 | 9 | 8 | 5 | 8 | 9 | 0 | 2 | 3 | | | |
| Bedstraw | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Blackgrass | | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Cheatgrass | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 3 | 0 | - | | |
| Chickweed | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Cocklebur | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Corn | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Cotton | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Crabgrass | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | | |
| Giant foxtail | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Lambsquarter | | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | | |
| Morningglory | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Nutsedge | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Rape | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Rice | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Sicklepod | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| Sorghum | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Soybean | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Sugar beet | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Velvetleaf | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Wheat | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Wild buckwheat | | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Wild oat | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |

| Table A | | COMPOUND | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------|----------|----------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---|---|--|--|
| Rate | 400 g/ha | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | | | | |
| PREEMERGENCE | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| Barley | | 7 | 1 | 6 | 3 | 6 | 0 | 7 | 9 | 8 | 7 | 0 | 8 | 0 | 0 | 0 | 1 | 3 | 3 | 2 | 0 | 0 | 6 | 7 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | | | |
| Barnyardgrass | | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | | | |
| Bedstraw | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| Blackgrass | | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | | | |
| Cheatgrass | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | | | |
| Chickweed | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| Cocklebur | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| Corn | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| Cotton | | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| Crabgrass | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| Giant foxtail | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | | | |
| Lambsquarter | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | | | |
| Morningglory | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | | | |
| Nutsedge | | 0 | - | 0 | 0 | 0 | - | - | - | - | - | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Rape | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 3 | 0 | 0 | | | |
| Rice | | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Sicklepod | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| Sorghum | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Soybean | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | 2 | 1 | 0 | 0 | 0 | | | |
| Sugar beet | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 2 | 1 | 0 | 0 | | |
| Velvetleaf | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | | |
| Wheat | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | | |
| Wild buckwheat | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | | |
| Wild oat | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | | |

[illegible][illegible]

| Table A | COMPOUND | | |
|----------------|----------|-----|-----|
| Rate 400 g/ha | 117 | 118 | 120 |
| PREEMERGENCE | | | |
| Barley | 0 | 0 | 0 |
| Barnyardgrass | 4 | 4 | 1 |
| Bedstraw | 0 | 0 | 0 |
| Blackgrass | 0 | 0 | 0 |
| Cheatgrass | 0 | 0 | 0 |
| Chickweed | 0 | - | 0 |
| Cocklebur | 0 | 0 | 0 |
| Corn | 0 | 0 | 0 |
| Cotton | 0 | 0 | 0 |
| Crabgrass | 0 | 0 | 0 |
| Giant foxtail | 0 | 0 | 0 |
| Lambsquarter | 0 | - | 0 |
| Morningglory | 0 | 0 | 0 |
| Nutsedge | 0 | 0 | 0 |
| Rape | 0 | 0 | 0 |
| Rice | 0 | 0 | 1 |
| Sicklepod | - | - | - |
| Sorghum | 0 | 0 | 0 |
| Soybean | 0 | 0 | 0 |
| Sugar beet | 0 | 0 | 0 |
| Velvetleaf | 0 | 0 | 0 |
| Wheat | 0 | 0 | 0 |
| Wild buckwheat | 0 | 0 | 0 |
| Wild oat | 0 | 0 | 0 |

| Table A | COMPOUND | |
|----------------|----------|-----|
| Rate 200 g/ha | 102 | 119 |
| POSTEMERGENCE | | |
| Barley | 0 | 0 |
| Barnyardgrass | 7 | 3 |
| Bedstraw | 0 | 0 |
| Blackgrass | 0 | 0 |
| Bush bean | - | - |
| Cheatgrass | 0 | 0 |
| Chickweed | 0 | 2 |
| Cocklebur | 0 | 0 |
| Corn | 0 | 0 |
| Cotton | 0 | 0 |
| Crabgrass | 0 | 2 |
| Giant foxtail | 0 | 3 |
| Lambsquarter | 0 | 4 |
| Morningglory | 0 | 0 |
| Nutsedge | 0 | 0 |
| Rape | 0 | 2 |
| Rice | 0 | 0 |
| Sicklepod | - | - |
| Sorghum | 0 | 0 |
| Soybean | 0 | 0 |
| Sugar beet | 0 | 2 |
| Velvetleaf | 0 | 3 |
| Wheat | 0 | 0 |
| Wild buckwheat | 0 | 0 |
| Wild oat | 0 | 0 |

Table A COMPOUND

Rate 200 g/ha 102 119

PREEMERGENCE

| | | |
|---------------|---|---|
| Barley | 0 | 0 |
| Barnyardgrass | 7 | 2 |
| Bedstraw | 0 | 3 |
| Blackgrass | 0 | 0 |
| Cheatgrass | 0 | 0 |
| Chickweed | 0 | 3 |
| Cocklebur | 0 | 0 |
| Corn | 0 | 0 |
| Cotton | 0 | 0 |
| Crabgrass | 0 | 0 |
| Giant foxtail | 0 | 0 |
| Lambsquarter | 0 | 0 |

Table A COMPOUND

Rate 200 g/ha 102 119

PREEMERGENCE

| | | |
|----------------|---|---|
| Morningglory | 0 | 0 |
| Nutsedge | 0 | 0 |
| Rape | 0 | 0 |
| Rice | 0 | 0 |
| Sicklepod | - | - |
| Sorghum | 0 | 0 |
| Soybean | 0 | 0 |
| Sugar beet | 0 | 0 |
| Velvetleaf | 0 | 0 |
| Wheat | 0 | 0 |
| Wild buckwheat | 0 | 0 |
| Wild oat | 0 | 0 |

TEST B

- Seeds of barnyardgrass (*Echinochloa crus-galli*), cheatgrass (*Bromus secalinus*), cocklebur (*Xanthium pensylvanicum*), crabgrass (*Digitaria* spp.), giant
- 5 foxtail (*Setaria faberii*), morningglory (*Ipomoea* spp.), sorghum (*Sorghum bicolor*), velvetleaf (*Abutilon theophrasti*), and wild oat (*Avena fatua*) were planted into a sandy loam soil and treated preemergence with test chemicals dissolved in a non-phytotoxic solvent.
- 10 At the same time, these crop and weed species were also treated postemergence with test chemicals. Plants ranged in height from two to eighteen cm and were in the two to three leaf stage for the postemergence treatment. Treated plants and untreated controls were
- 15 maintained in a greenhouse for approximately eleven days, after which all treated plants were compared to untreated controls and visually evaluated for injury. Plant response ratings, summarized in Table B, are based on a 0 to 10 scale where 0 is no effect and 10 is
- 20 complete control. A dash (-) response means no test results.

| Table B | COMPOUND | | | | |
|----------------|----------|----|----|----|--|
| Rate 2000 g/ha | 2 | 3 | 43 | 45 | |
| POSTEMERGENCE | | | | | |
| Barnyardgrass | 6 | 10 | 3 | 10 | |
| Cheatgrass | 0 | 0 | 0 | 0 | |
| Cocklebur | 0 | 0 | 1 | 0 | |
| Crabgrass | 2 | 1 | 2 | 0 | |
| Giant foxtail | 1 | 1 | 1 | 0 | |
| Morningglory | 1 | 0 | 1 | 0 | |
| Sorghum | 1 | 1 | 1 | 0 | |
| Velvetleaf | 1 | 1 | 1 | 0 | |
| Wild oats | 1 | 1 | 1 | 0 | |

| Table B | COMPOUND | | | | |
|----------------|----------|----|----|----|--|
| Rate 2000 g/ha | 2 | 3 | 43 | 45 | |
| PREEMERGENCE | | | | | |
| Barnyardgrass | 9 | 10 | 0 | 9 | |
| Cheatgrass | 0 | 0 | 0 | 0 | |
| Cocklebur | 0 | 0 | 0 | 0 | |
| Crabgrass | 0 | 0 | 0 | 0 | |
| Giant foxtail | 0 | 0 | 0 | 0 | |
| Morningglory | 0 | 0 | 0 | 0 | |
| Sorghum | 0 | 0 | 0 | 0 | |
| Velvetleaf | 0 | 0 | 0 | 0 | |
| Wild oats | 0 | 0 | 0 | 0 | |

Table B COMPOUND

Rate 1000 g/ha 2 3

POSTEMERGENCE

Barnyardgrass 2 10

Cheatgrass 0 0

Cocklebur 0 0

Crabgrass 1 0

Giant foxtail 0 0

Morningglory 0 0

Sorghum 0 1

Velvetleaf 0 0

Wild oats 0 0

Table B COMPOUND

Rate 1000 g/ha 2

PREEMERGENCE

Barnyardgrass 9

Cheatgrass 0

Cocklebur 0

Crabgrass 0

Giant foxtail 0

Morningglory 0

Sorghum 0

Velvetleaf 0

Wild oats 0

TEST C

The test chemicals were formulated in a non-phytotoxic solvent and applied to water that covered the soil surface (flood application). Seeds of barnyardgrass (*Echinochloa crus-galli*), and rice (*Oryza sativa*) were planted in silt loam soil in separate containers. Containers of barnyardgrass and rice were grown for ten days (barnyardgrass at 2 leaf stage) and flooded one day prior to treatment. Water depth was maintained at approximately 2.5 cm for the duration of the test.

All plant species were grown using normal greenhouse practices. Treated plants were compared to untreated controls and visually evaluated eleven to fifteen days after treatment. Plant response ratings, summarized in Table C, were recorded on a 0 to 100 scale where 0 is no effect and 100 is complete control. A dash (-) response means no test result.

150

| | | |
|---|-----------------|----------|
| | Table C | COMPOUND |
| | Rate 250 g/ha | 28 |
| | POSTEMERGENCE | |
| | Barnyardgrass 2 | 100 |
| 5 | Rice Japonica | 0 |

| | | |
|----|-----------------|--------------------|
| | Table C | COMPOUND |
| | Rate 62 g/ha | 3 9 28 46 55 |
| | POSTEMERGENCE | |
| 10 | Barnyardgrass 2 | 100 90 100 100 100 |
| | Rice Japonica | 0 30 0 15 0 |

| | | |
|----|-----------------|-----------------|
| | Table C | COMPOUND |
| | Rate 16 g/ha | 3 9 28 46 55 |
| 15 | POSTEMERGENCE | |
| | Barnyardgrass 2 | 100 40 95 95 95 |
| | Rice Japonica | 0 0 0 0 0 |

| | | |
|----|-----------------|----------------|
| | Table C | COMPOUND |
| 20 | Rate 4 g/ha | 3 9 28 46 55 |
| | POSTEMERGENCE | |
| | Barnyardgrass 2 | 95 20 85 90 80 |
| | Rice Japonica | 0 0 0 0 0 |

| | | |
|----|-----------------|------------|
| 25 | Table C | COMPOUND |
| | Rate 1 g/ha | 3 9 46 55 |
| | POSTEMERGENCE | |
| | Barnyardgrass 2 | 65 0 65 60 |
| | Rice Japonica | 0 0 0 0 |

30

TEST D

Plastic pots were partially filled with silt loam soil then saturated with water. Japonica rice (*Oryza sativa*) seedlings, barnyardgrass (*Echinochloa crus-*

35 *galli*) and watergrass (*Echinochloa walteri*) were grown

to the 1, 2 and 3 leaf stages and planted. After planting, water levels were raised to 3 cm above the soil surface and maintained at this level throughout the test. Chemical treatments were formulated in a non-phytotoxic solvent and applied directly to the paddy water. Treated plants and controls were maintained in a greenhouse for approximately 21 days, after which all species were compared to controls and visually evaluated. Plant response ratings, summarized in Table D, are reported on a 0 to 100 scale where 0 is no effect and 100 is complete control. A dash (-) response means no test result.

| Table D | COMPOUND | | |
|-----------------|----------|-----|--|
| Rate 500 g/ha | 3 | 46 | |
| FLOOD | | | |
| Barnyardgrass 2 | - | 100 | |
| Barnyardgrass 3 | 100 | 100 | |
| Japonica 1 | 0 | 35 | |
| Japonica 2 | - | 0 | |
| Watergrass 2 | - | 0 | |
| Watergrass 3 | 85 | - | |

| Table D | COMPOUND | | |
|-----------------|----------|-----|--|
| Rate 250 g/ha | 3 | 46 | |
| FLOOD | | | |
| Barnyardgrass 2 | - | 100 | |
| Barnyardgrass 3 | 100 | 100 | |
| Japonica 1 | 0 | 20 | |
| Japonica 2 | - | 0 | |
| Watergrass 2 | - | 0 | |
| Watergrass 3 | 90 | - | |

Table D COMPOUND

Rate 125 g/ha 3 46

FLOOD

Barnyardgrass 2 - 100

Barnyardgrass 3 100 100

Japonica 1 0 0

Japonica 2 - 0

Watergrass 2 - 0

Watergrass 3 80 -

Rate 64 g/ha 3 28 46

FLOOD

Barnyardgrass 2 - 98 100

Barnyardgrass 3 100 98 100

Japonica 1 0 0 10

Japonica 2 - 0 0

Watergrass 2 - 0 0

Watergrass 3 80 - -

Rate 8 g/ha 3 28 46

FLOOD

Barnyardgrass 2 - 35 80

Barnyardgrass 3 75 40 85

Japonica 1 0 0 0

Japonica 2 - 0 0

Watergrass 2 - 0 0

Watergrass 3 45 - -

Table D COMPOUND

Rate 32 g/ha 3 28 46

FLOOD

Barnyardgrass 2 - 85 100

Barnyardgrass 3 98 85 100

Japonica 1 0 0 0

Japonica 2 - 0 0

Watergrass 2 - 0 0

Watergrass 3 75 - -

Rate 16 g/ha 3 28 46

FLOOD

Barnyardgrass 2 - 60 98

Barnyardgrass 3 75 70 95

Japonica 1 0 0 0

Japonica 2 - 0 0

Watergrass 2 - 0 0

Watergrass 3 50 - -

Rate 4 g/ha 28 46

FLOOD

Barnyardgrass 2 25 70

Barnyardgrass 3 30 70

Japonica 1 0 0

Japonica 2 0 0

Watergrass 2 0 0

Watergrass 3 - -

TEST E

Plastic pots were partially filled with clay loam soil. Transplanted seedlings of Japonica rice (*Oryza sativa*) and seeds of barnyardgrass (*Echinochloa oryzicola*) were planted in flooded pots. Plants were then grown to the 2 leaf, 2.5 leaf and 3 leaf stages for testing. At test, water levels for all plantings were kept to 3 cm above the soil surface. Chemical treatments were formulated in a non-phytotoxic solvent and applied directly to the paddy water. Treated plants and controls were maintained in a greenhouse for approximately 21 to 28 days, after which all species were compared to controls and visually evaluated. Plant response ratings, summarized in Table E are reported on a 0 to 100 scale where 0 is no effect and 100 is complete control.

Table E COMPOUND

| | |
|-----------------|----|
| Rate 1000 g/ha | 3 |
| Barnyardgrass 2 | 50 |
| Rice 1 | 10 |
| Rice 2 | 10 |

| | |
|-----------------|----|
| Rate 500 g/ha | 3 |
| Barnyardgrass 2 | 50 |
| Rice 1 | 15 |
| Rice 2 | 10 |

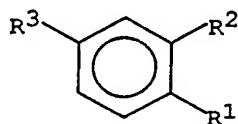
Table E COMPOUND

| | |
|-----------------|----|
| Rate 250 g/ha | 3 |
| Barnyardgrass 2 | 50 |
| Rice 1 | 25 |
| Rice 2 | 10 |

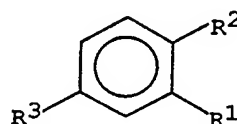
| | |
|-----------------|----|
| Rate 125 g/ha | 3 |
| Barnyardgrass 2 | 40 |
| Rice 1 | 0 |
| Rice 2 | 0 |

What is claimed is:

1. A composition for controlling the growth of undesired vegetation comprising an effective amount of
5 a compound of Formula I or II



I

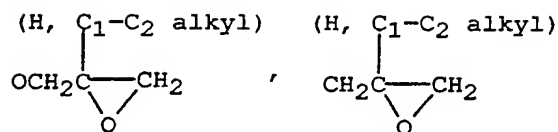
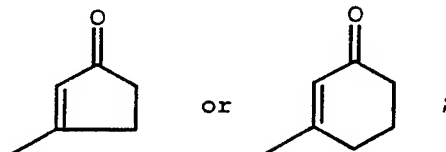


II

wherein

- 10 R^1 is Cl, Br, I, OCH_3 , $OCHF_2$, OCF_3 or NO_2 ;
- R^2 is CN, CO_2R^4 , CHO, $C(X)NR^{17}R^{18}$, $C(S)OR^6$, $C\equiv CH$,
 $CHR^{19}OR^{20}$, $CH=NOR^7$, $CH=CR^{21}R^{22}$, $C(halogen)=NOR^7$,
 $C(NH_2)=NOR^7$, $C(CN)=NOR^7$, $CHR^{19}(halogen)$,
 $CHR^{19}CN$, $CHR^{19}C(=O)NH_2$, $CHR^{19}CO_2H$, or a five-
15 membered heterocyclic ring containing one or
more nitrogen, sulfur, or oxygen atoms and
optionally substituted with one or more CH_3 ,
 CF_3 , OCH_3 , SCH_3 , or halogen;
- 20 R^3 is *n*-propyl; C_4 - C_{10} alkyl; *n*-propyl or C_4 - C_7
alkyl each substituted with one or more
halogen, OR^8 , SR^9 or $NR^{10}R^{11}$; C_1 - C_2 alkyl
substituted with OR^{16} , SR^9 , $NR^{14}R^{15}$, $CO_2(C_1$ - C_2
alkyl) or phenyl optionally substituted with
one or more CH_3 , CF_3 , OCH_3 , SCH_3 or halogen;
25 C_3 - C_6 cycloalkyl; $CH_2(C_3$ - C_6 cycloalkyl); phenyl,
pyridyl, thienyl, furyl, pyrazolyl or
thiazolyl, each optionally substituted with one
or more CH_3 , CF_3 , OCH_3 , SCH_3 or halogen; C_2 - C_6
alkenyl optionally substituted with one or more
30 halogen or $CO_2(C_1$ - C_2 alkyl);
 OR^{12} ; SR^{13} ; $NR^{14}R^{15}$; $C(=X)R^{12}$;

155

or O-N=CR³⁰R³¹;R⁴ is H, C₁-C₂ alkyl,

5

R⁶, R⁷, R⁸, R⁹, R¹⁰ and R¹¹ are independently H or C₁-C₂ alkyl;

R¹² and R¹³ are independently C₁-C₁₀ alkyl

10 optionally substituted with one or more halogen, OR⁸, SR⁹, CO₂R²³, C(O)NR²⁴R²⁵, CN, Si(CH₃)₃, C(R²⁶)(OR²⁷)(OR²⁸) or NR¹⁰R¹¹; C₁-C₃ alkyl substituted with a five- or six-membered heterocyclic ring containing 1-2 heteroatoms
 15 selected from the group 1-2 nitrogens, 1 oxygen and 1 sulfur, each ring optionally substituted with 1-2 substituents selected from F, Cl, Br, CH₃, CF₃, OCH₃ and CN; C₃-C₆ alkenyl; or phenyl or benzyl, each ring optionally substituted
 20 with one or more CH₃, CF₃, OCH₃, OR²⁹, SCH₃ or halogen;

R¹⁴ and R¹⁵ are independently H or C₁-C₂ alkyl, or may be taken together along with the nitrogen to which they are attached to form a pyrrolyl,
 25 piperidinyl, morpholinyl, pyrazolyl, or imidazolyl ring, each optionally substituted with one or more CH₃, CF₃, OCH₃, SCH₃, or halogen;

- R^{16} is H, C_1 - C_8 alkyl; benzyl optionally substituted with one or more CH_3 , CF_3 , OCH_3 , SCH_3 or halogen; or phenyl optionally substituted with one or more CH_3 , CF_3 , OCH_3 , SCH_3 or halogen;
- R^{17} is H, C_1 - C_2 alkyl or phenyl optionally substituted with one or more CH_3 , CF_3 , OCH_3 , SCH_3 or halogen;
- R^{18} is H, C_1 - C_2 alkyl, C_3 - C_6 cycloalkyl, $CH_2(C_3$ - C_6 cycloalkyl), $O(C_1$ - C_4 alkyl), O-allyl or may be taken together with R^{17} as $-(CH_2)_4-$, $-(CH_2)_5-$ or $-(CH_2CH_2OCH_2CH_2)-$;
- R^{19} is H or C_1 - C_2 alkyl;
- R^{20} is H or $C(O)CH_3$;
- R^{21} and R^{22} are independently H, CN, CO_2R^4 , $C(X)NR^{17}R^{18}$ or halogen;
- R^{23} , R^{24} , R^{25} and R^{26} are independently H; C_1 - C_3 alkyl; or phenyl optionally substituted with one or more CH_3 , CF_3 , OCH_3 , SCH_3 , or halogen;
- R^{27} and R^{28} are independently C_1 - C_3 alkyl or may be taken together as $-(CH_2)_2-$ or $-(CH_2)_3-$ optionally substituted with 1-2 CH_3 's;
- X is O or S;
- R^{29} is phenyl, pyridyl, thiazolyl, pyrazolyl or pyrrolyl each optionally substituted with one or more CH_3 , CF_3 , OCH_3 , SCH_3 , or halogen; and
- R^{30} and R^{31} are each independently H; C_1 - C_{10} alkyl; or phenyl optionally substituted with one or more CH_3 , CF_3 , OCH_3 , SCH_3 , or halogen;
- and agriculturally suitable salts thereof and at least one of the following: surfactant, solid or liquid diluent.
2. The composition of Claim 1 wherein R^1 is Cl, Br or I;

R² is CN, CO₂H, CO₂CH₃, CO₂CH₂CH₃, CHO, C(O)NH₂,
C(O)NHCH₃, C(O)N(CH₃)₂, CH₂OH or CH=NOR⁷;

R³ is *n*-propyl; C₄-C₇ alkyl; C₂ alkyl substituted
with phenyl optionally substituted with one or
more CH₃, CF₃, OCH₃, SCH₃ or halogen; CH₂(C₃-C₆
cycloalkyl); phenyl optionally substituted with
one or more CH₃, CF₃, OCH₃, SCH₃ or halogen; or
OR¹²;

R¹² is C₂-C₄ alkyl;

3. The compositions of Claim 2 wherein

R¹ is Cl or Br;

R² is CN, CO₂H or C(O)NH₂;

R³ is C₄-C₇ alkyl, CH₂(C₃-C₆ cycloalkyl) or OR¹².

4. The composition of Claim 1 where the compound
is 2-chloro-4-(2-methylpropoxy)benzamide.

5. A method for controlling the growth of
undesired vegetation which comprises applying to the
locus to be protected an effective amount of the
composition of Claim 1.

6. A method for controlling the growth of
undesired vegetation which comprises applying to the
locus to be protected an effective amount of the
composition of Claim 2.

7. A method for controlling the growth of
undesired vegetation which comprises applying to the
locus to be protected an effective amount of the
composition of Claim 3.

8. A method for controlling the growth of
undesired vegetation which comprises applying to the
locus to be protected an effective amount of the
composition of Claim 4.

9. A method for controlling the growth of
undesired vegetation which comprises applying to the
locus to be protected an effective amount of the
composition of Claim 4.

INTERNATIONAL SEARCH REPORT

 Internatic Application No
 PCT/US 93/08096

A. CLASSIFICATION OF SUBJECT MATTER

 IPC 5 A01N37/40 A01N31/14 A01N35/04 A01N35/10 A01N37/10
 A01N37/18 A01N37/34

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 5 A01N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|--|-----------------------|
| X | US,A,3 776 715 (R.J. THEISSEN) 4 December 1973 see column 1, line 19 - line 34 --- | 1,5 |
| A | GB,A,900 561 (HOOKER) 11 July 1962 --- | |
| A | GB,A,901 553 (VELSICOL) 18 July 1962 --- | |
| A | FR,A,1 216 998 (PHILIPS) 29 April 1960 --- | |
| A | US,A,3 169 849 (A.J. LEMIN) 16 February 1965 --- | |
| A | US,A,3 982 931 (E. ARSURA ET AL.) 28 September 1976 ----- | |

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

5 January 1984

Date of mailing of the international search report

20. 01. 94

Name and mailing address of the ISA

 European Patent Office, P.B. 5818 Patentlaan 2
 NL - 2280 HV Rijswijk
 Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
 Fax (+31-70) 340-3016

Authorized officer

Decorte, D

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 93/08096

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☒ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
Claims searched completely: : 2-4, 6-9
Claims searched incompletely: 1, 5; only their subject matter as defined in claims 2-4, and 6-9 has been searched completely.
(see attached sheet)

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/

In accordance with the last paragraph of Chapter III, Point 3.6 of the PCT Search Guidelines, the subject matter of claims 1 and 5 has not been exhaustively searched. Only its subject matter as further defined in the compositions claims 2, 3 and 4 as well as in the corresponding use claims 6-9 has been exhaustively searched.

Additional arguments for limiting the scope of the search could be found in the following considerations :

Each of the claimed compounds comprised in the Markush Formula I and II, is a compound resulting from the variation of the values of each of the three substituents (which embrace a vast array of independently varying radicals which are heterogeneous in structure - in particular R₁ - on an 1,2,4 tri-substituted nucleus which represents a special (structural) technical feature of the herbicide derivatives according to the invention.

It appears from e.g. US-A- 3.776.715 (see column 1 , line 19 - line 24) that herbicidal compounds comprising this structural element are known in the prior art.

In this perspective it is not possible (starting from the plethora of individual compounds and without making assumptions having no basis in the application documents) to unambiguously determine a (or a plurality of) GENERALISED set(s) of distinct features which could be considered as special technical features of a solution or of a plurality of alternative solutions to an accordingly formulated problem underlying the invention as a whole.

Consequently the wording of claims 1 and 5 does not comply with Art 6, and Rule 6.3(a), which require that an invention should be clearly defined in terms of the features supported by the invention. These should be identifiable from an appropriate technical statement, supported by the description of the problem and the solution thereto proposed.

The application does not comply with rule 5.1(a) ii and iii in that the description does not provide the common feature(s) of the compounds embraced by the breadth of the definition of claim 1 in a useful manner for understanding the invention and carrying out the search.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 93/08096

| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
|---|---------------------|----------------------------|---------------------|
| US-A-3776715 | 04-12-73 | US-A- 3929455 | 30-12-75 |
| | | US-A- 3873302 | 25-03-75 |
| | | US-A- 3873303 | 25-03-75 |
| | | BE-A- 749444 | 23-10-70 |
| | | CA-A- 971973 | 29-07-75 |
| | | DE-A, B, C 2019821 | 12-11-70 |
| | | FR-A- 2040235 | 22-01-71 |
| | | GB-A- 1232368 | 19-05-71 |
| | | NL-A- 7005783 | 27-10-70 |
| | | US-E- RE32550 | 24-11-87 |
| | | US-E- RE32316 | 30-12-86 |
| | | US-E- RE31831 | 12-02-85 |
| | | US-A, B 3652645 | 28-03-72 |
| | | US-A- 3784635 | 08-01-74 |
| | | US-E- RE32243 | 09-09-86 |
| | | US-E- RE32216 | 29-07-86 |
| ----- | | | |
| GB-A-900561 | | NONE | |
| ----- | | | |
| GB-A-901553 | | AT-A- 224976 | |
| | | AU-B- 250929 | |
| | | BE-A- 589221 | |
| | | CH-A- 410517 | |
| | | FR-A- 1240715 | |
| | | IT-A- 615450 | |
| | | LU-A- 37507 | |
| | | LU-A- 37509 | |
| | | NL-C- 122754 | |
| | | NL-A- 241973 | |
| | | NL-A- 6510535 | 25-10-65 |
| | | US-A- 3013050 | |
| | | US-A- 3013051 | |
| | | US-A- 3013052 | |
| | | US-A- 3013053 | |
| | | US-A- 3013054 | |
| | | US-A- 3013055 | |
| | | US-A- 3013056 | |
| | | US-A- 3013057 | |
| | | US-A- 3013058 | |
| | | US-A- 3013059 | |

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/US 93/08096

| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
|---|---------------------|---|--|
| GB-A-901553 | | US-A- 3013060 US-A- 3013061 US-A- 3013062 US-A- 3130205 US-A- 3138446 | |
| FR-A-1216998 | | BE-A- 572662 CH-A- 427405 DE-B- 1133176 GB-A- 862863 NL-C- 97486 NL-A- 222165 OA-A- 793 US-A- 3027248 | 15-11-67 |
| US-A-3169849 | | NONE | |
| US-A-3982931 | 28-09-76 | BE-A- 723592 CH-A- 511557 DE-A- 1807509 FR-A- 1593132 GB-A- 1242579 NL-A- 6815727 OA-A- 2924 SE-B- 355929 US-A- 3835189 | 08-05-69 31-08-71 17-07-69 25-05-70 11-08-71 13-05-69 15-12-70 14-05-73 10-09-74 |